

**UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF NEW YORK**

IN RE PLATINUM AND PALLADIUM  
ANTITRUST LITIGATION

Lead Case No. 14-cv-9391

Hon. Gregory H. Woods

**SECOND CONSOLIDATED  
AMENDED CLASS ACTION  
COMPLAINT**

**JURY TRIAL DEMANDED**

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Plaintiffs Norman Bailey, Thomas Galligher, Larry Hollin, KPFF Investment, Inc., Ken Peters, and White Oak Fund LP (collectively, “Plaintiffs”), individually and on behalf of all those similarly situated, as defined below, bring this class action for treble damages and injunctive relief and allege as follows:

### **NATURE OF THE ACTION**

1. Throughout the Class Period (as defined below), BASF Metals, Goldman Sachs, HSBC, and Standard Bank (the “Fixing Defendants”) met via private conference call twice each London business day for what is aptly known as the London Platinum and Palladium Price Fixing (the “Fixing” or “Fix”). The Fixing set global benchmark prices for platinum and palladium. The morning call was known as the “AM Fixing,” and the afternoon call was known as the “PM Fixing.” In 2004, the Fixing Defendants established The London Platinum and Palladium Fixing Company Ltd. (“LPPFC”) to operate as the vehicle for the Fixing.

2. The Fixing was supposed to be a competitive process. The process began with the current spot rate<sup>1</sup> for platinum and palladium. From that starting point, a bona fide auction was supposed to take place. In theory the equilibrium price for platinum and the equilibrium price for palladium reached during each auction – *i.e.*, the price where the Fixing Defendants’ buy and sell orders were roughly equal – became the “Fix” or the globally accepted benchmark prices adopted at that session of the Fixing for each metal. Those benchmark prices would be used in a plethora of transactions for platinum and palladium worldwide.

3. Buyers and sellers of physical platinum and palladium pre-arrange transactions with the price term being directly fulfilled by adoption of the Fix benchmark prices for a given future date, but the influence of the Fixing for platinum and palladium goes beyond contracts that

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<sup>1</sup> The spot rate reflects the value of an asset at the moment of the quote.

explicitly adopt the Fix prices as their own. Because of the Fixing's importance as a benchmark, as the Fix prices go, so too go the spot and futures markets for platinum and palladium. The relationship is undeniable and is thoroughly documented by studies conducted by independent academics and Plaintiffs. For example, many derivatives have their cash flows calculated in reference to the Fix benchmark prices on a given day.

4. Due to the fact that the Fixing served as a benchmark for many contracts and derivatives, the conspiracy gave the Defendants the opportunity to move the Fixing downward at their discretion to benefit themselves. Due to the fact that the Fix price was in a symbiotic relationship with spot and futures prices, control over the Fixing gave the Defendants the ability to cash in on their foreknowledge of the direction for prices of platinum and palladium in other venues.

5. The Fixing Defendants also faced an enormous conflict of interest in that each of the Fixing Defendants is a major participant in the platinum and palladium markets (including holding proprietary positions in these markets). Shockingly, despite this enormous conflict of interest, Fixing Defendants and their co-conspirators including UBS (together with the Fixing Defendants, the "Defendants") benefitted from the fact that the Fixing had little or no government or independent oversight during the Class Period.

6. Thus, because the anachronistic Fixing process had sanctioned the Fixing Defendants' *daily, private, and unregulated* Fix meetings to set benchmark prices for platinum and palladium via the LPPFC, the Defendant were presented with a too-tempting opportunity for coordination. And, as with other benchmark prices (numerous interest rates, numerous FX rates, etc.), rather than letting prices move in line with competition the Defendants colluded around the AM and PM Fixings for platinum and palladium to ensure prices moved in the direction that was

financially beneficial to the Defendants' collective and individual interests.

7. That competitive forces broke around the AM and PM Fixings is confirmed by Plaintiffs' forensic work. As detailed herein, prices for platinum and palladium acted differently around the Fixing than they did *at any other time of day*. No matter how many ways the pricing data is analyzed, *statistically significant* patterns of deviations from the norm are observed, *only* around the AM and PM Fixing. Specifically, prices quickly went down far more often than they went up. And when prices went down at the Fixing, they went down *further* than prices increased when they went up.

8. Defendants drove these downward movements first by moving the spot and forward markets for platinum and palladium in advance of and even during the Fixing. Based on the analysis conducted by Plaintiffs, the only explanation for the observed price movements is that Defendants shared in advance confidential client order information and information concerning their proprietary positions. This allowed the coordinated execution of transactions just before and during the Fixing. Transactions that would move the market in the desired direction – such as large sell orders on a day platinum and/or palladium were to be driven down – would be grouped and timed for maximum effect around the Fixing, thus altering the starting price, inducing clients to change their directions to the Defendants, and giving cover to an auction-rate that would otherwise have stood out. Transactions that would otherwise counteract those deals would be “netted off” between the Defendants and their co-conspirators, or otherwise executed (or not) in ways that did not send signals to the market that the Defendants did not want sent.<sup>2</sup>

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<sup>2</sup> Defendants' manipulative tactics included, among others, “front running” (trading in their own positions in advance of customer orders to take advantage of the market's resulting move when the client's orders are placed), “spoofing” (placing large orders that are never

9. The Defendants coordinated these efforts around the AM and PM Fixings, as opposed to other times of day, because the Fixing presented multiple advantages. The Fixing process provided a veneer of legitimacy for the Fixing Defendants' *daily, private, and unregulated* meetings to set prices – something that would be an obvious anathema to competition in any other context. The Defendants were presented with a ready-made process for *daily* coordination of their activities. By manipulating the price around the Fixing, the Defendants were creating opportunities to profit in numerous outlets for platinum and palladium investments.

10. Independent academic research confirms that the downward movements around the AM and PM Fixing were the result of manipulation and not natural market forces. In a fully competitive environment, over a long enough time horizon, there is no reason to expect *so much* more “bad” news to come out around the Fixing, than “good” news, as to have caused such asymmetrical price movements at the Fixing. Nor is there reason for sellers to be *asymmetrically* drawn to the AM and PM Fixing, as opposed to buyers as well. Thus, that prices moved asymmetrally in one direction, in a statistically significant way, is powerful evidence that prices were being manipulated by the Defendants and their co-conspirators.<sup>3</sup> So too is the fact that many of the anomalies – which previously appeared *consistently, year after year* – abated

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executed), “wash sales” (placing large orders that are executed then quickly reversed), and “jamming” (using such techniques to trigger a stop-loss order or to avoid a bank’s having to pay on an option or similar contracts). Significantly, these are the same techniques Defendants HSBC and UBS employed to manipulate the foreign exchange markets which are well-documented in their settlement with the U.S. Commodity Futures Trading Commission (“CFTC”) and the U.K. Financial Conduct Authority (“FCA”). The overlap in manipulative strategy is not surprising. Both HSBC and UBS traded precious metals from their foreign exchange desks during the Class Period.

<sup>3</sup> Indeed, the price spikes are observed to have occurred around the AM and PM Fixing *specifically*. For various reasons, such as changing daylight savings times, the Fix occurred at different times during the New York trading day, and sometimes did not occur at all. The spikes follow the Fix and they disappear completely on days when no Fixing occurred.



starting in 2014, just as the Fixing practices began to come under increased scrutiny and the Defendants' scaled back their platinum and palladium futures short positions.

11. The manipulation was a joint effort of these Defendants – who are among the largest platinum and palladium traders in the world. A single actor could not and would not have attempted to move the market so *consistently* over such a long time period. There would not have been enough “ammo” to do so, and the risk (and cost) would have been too high. Indeed, Plaintiffs' analysis confirms that the downward movements were the result of *joint* actions by *these* Defendants.

12. The prices of platinum and palladium move the value of, and determine the cash flow for, many different kinds of transactions. The number of ways the world's largest precious metals banks and institutions could profit from foreknowledge as to the timing and direction of future spikes in the prices of platinum and palladium is essentially limitless. The Defendants can and did profit on Fix price linked sales of physical platinum and palladium, allowing them to buy platinum and palladium cheaper during a period of artificial suppression than they otherwise would have, making a *riskless* profit when the effects of the suppression abated (or, in the case of Defendant BASF, utilizing the physical platinum and palladium for commercial uses and realizing increased profits due to lower platinum and palladium costs). The Defendants can and did profit on huge portfolios of Fix price linked derivatives. The Defendants can and did profit by avoiding triggers for their client's digital options. The Defendants can and did profit because they were holders of massive short positions in the futures markets (including the New York Mercantile Exchange (“NYMEX”)<sup>4</sup> market).

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<sup>4</sup> The NYMEX is a commodities futures exchange owned and operated by CME Group Inc. (“CME”). CME stands for Chicago Mercantile Exchange. CME owns and operates large derivative and futures exchanges in New York and Chicago, as well as online trading platforms.

13. These are but some examples. There are many ways the Defendants could and *did* cash in on the foreknowledge that the Fix price, and thus the prices of platinum and palladium generally, was going to go down on a given day, at a given time. Large platinum and palladium traders like the Defendants could easily profit off of advanced knowledge of the existence and timing of a downward price spike, *regardless* of their overall position at the start of the day.

14. The opportunity for profit from foreknowledge of a spike is made all the more clear by the fact that, while the prices of platinum and palladium move together across all their respective markets, the value that movement creates (or destroys) is not necessarily equal even in a balanced portfolio.

15. For instance, NYMEX futures – an instrument the Defendants were heavily short in – are margined, on a cash basis, daily. In contrast, simply holding platinum and palladium in a vault does not result in a change in cash flows, and, indeed, a spike downward in the price of platinum and/or palladium could allow *more* platinum and/or palladium to be purchased, to be held for sale once the impact of the suppression abated. By way of another example, platinum and palladium forwards are only settled on expiry. Cash in hand today (from a daily-managed NYMEX futures contract) is generally worth more than an offsetting amount of cash leaving later (by way of a payment only at expiry forward). The Defendants – with their huge, daily-margined NYMEX short futures – were highly motivated to push the prices of platinum and palladium down on a daily basis, *regardless* of whether their positions were balanced from a regulatory or other perspective due to ownership of long positions such as physical platinum and palladium or forward contracts.

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CME's two principal divisions in New York are NYMEX and Commodity Exchange, Inc. ("COMEX").

16. That the Defendants knew how to profit from the joint manipulation of financial benchmarks, despite any purported differences in interests between and amongst them on a given day, is confirmed by the fact this is just one in a series of such misbehaviors. Many of the world's leading banks have *admitted* to manipulating the key LIBOR financial benchmark, including by way of collusion between their respective traders. In the FX markets, many of the world's leading banks *admitted* that their traders colluded to move the markets in advance of the setting of key currency benchmarks.

17. Switzerland's financial regulator, FINMA, recently reported that it has "seen clear attempts to manipulate fixes in the precious metals markets."<sup>5</sup> FINMA unequivocally found that these attempts involved "collusion" among UBS and "other banks,"<sup>6</sup> and that – "just as in foreign exchange trading" – the Defendants shared confidential client order information and expected future order information with other banks.<sup>7</sup> FINMA is currently investigating eleven currency and bullion traders at major banks.<sup>8</sup>

18. Both the Department of Justice ("DOJ") Antitrust Division and the Commodity Futures Trading Commission ("CFTC") are specifically investigating Defendants' and potential

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<sup>5</sup> Nicholas Larkin and Elena Logutenkova, *UBS Precious Metals Misconduct Found by Finma in FX Probe*, Bloomberg (Nov. 12, 2014), [www.bloomberg.com/news/2014-11-12/finma-s-ubs-foreign-exchange-settlement-includes-precious-metals.html](http://www.bloomberg.com/news/2014-11-12/finma-s-ubs-foreign-exchange-settlement-includes-precious-metals.html).

<sup>6</sup> FINMA, Press release: FINMA sanctions foreign exchange manipulation at UBS (Nov. 12, 2014), [www.finma.ch/e/aktuell/Documents/mm\\_ubs-devisenhandel\\_20141112\\_e.pdf](http://www.finma.ch/e/aktuell/Documents/mm_ubs-devisenhandel_20141112_e.pdf).

<sup>7</sup> FINMA, Foreign exchange trading at UBS AG: investigation conducted by FINMA – Report (Nov. 12, 2014) ("FINMA Report"), <https://www.finma.ch/en/news/2014/11/mm-ubs-devisenhandel-20141112/>.

<sup>8</sup> See Suzi Ring, Liam Vaughan and Hugo Miller, *Senior UBS FX, Metals Traders Among 11 Said to Face Swiss Probe*, Bloomberg (Nov. 26, 2014), [www.bloomberg.com/news/2014-11-26/senior-ubs-fx-metals-traders-among-11-said-to-face-swiss-probe.html](http://www.bloomberg.com/news/2014-11-26/senior-ubs-fx-metals-traders-among-11-said-to-face-swiss-probe.html).

co-conspirators' involvement in precious metals price-setting processes.<sup>9</sup> Under investigation are Bank of Nova Scotia, Barclays PLC, Credit Suisse Group AG, Deutsche Bank AG, Goldman Sachs Group Inc., HSBC Holdings PLC, J.P. Morgan Chase & Co., Société Générale SA, Standard Bank Group Ltd., and UBS AG. At least Defendant HSBC was subpoenaed relating to its precious metals practices.<sup>10</sup> Defendant UBS recently agreed to cooperate with U.S. regulators' precious metals investigation and was provided immunity from criminal charges.<sup>11</sup>

19. A recent U.S. Senate investigation noted that Defendant Goldman Sachs engaged in activities that manipulated commodities prices, engaged in risky commodities activities, engaged in physical commodity activities that mixed banking and commerce, had access to non-public and commercially valuable information relating to commodities, and that regulators and the public lack key information about physical commodities activities to form an accurate understanding of the nature and extent of those activities and to protect the markets.<sup>12</sup>

20. The graphs below identify how often the final AM and PM Fix prices for platinum and palladium were below the price for platinum and palladium just before the Fixing

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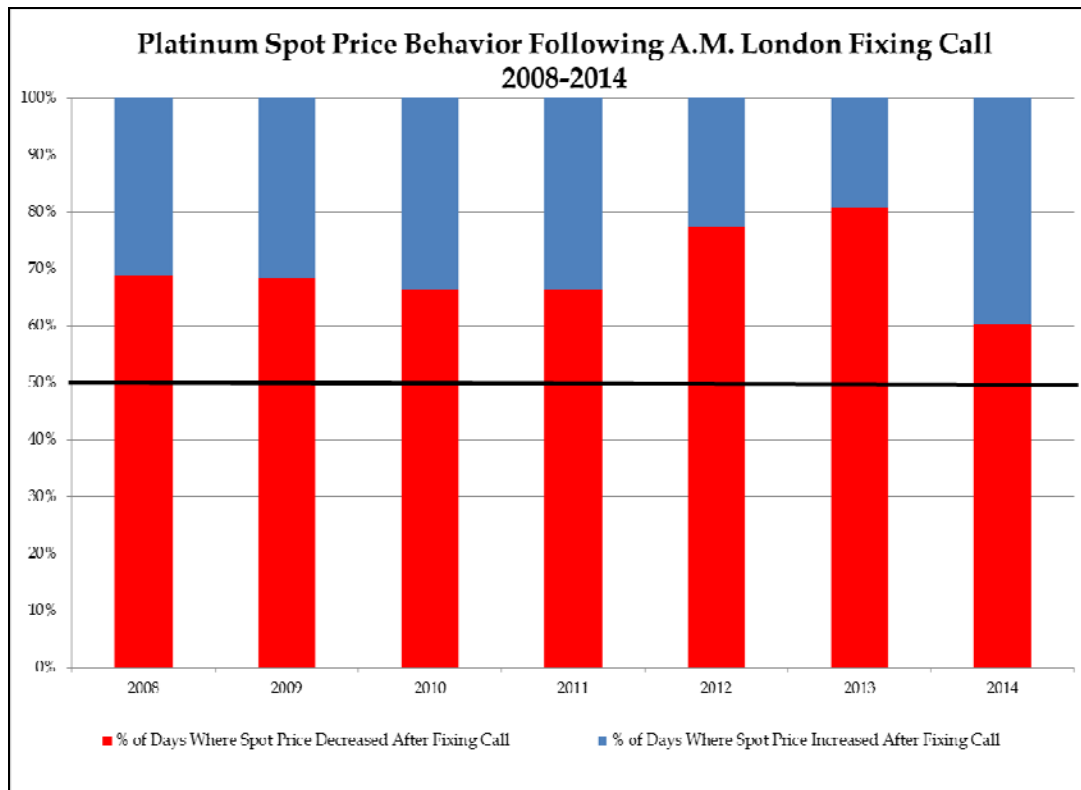
<sup>9</sup> See Jean Eaglesham and Christopher M. Matthews, *Big Banks Face Scrutiny Over Pricing of Metals: U.S. Justice Department investigates price-setting process for gold, silver, platinum, and palladium*, The Wall Street Journal (Feb. 23, 2015), [www.wsj.com/articles/big-banks-face-scrutiny-over-pricing-of-metals-1424744801](http://www.wsj.com/articles/big-banks-face-scrutiny-over-pricing-of-metals-1424744801); see also Jan Harvey, *CFTC subpoenaed HSBC Bank USA for documents on metals trading*, Reuters (Feb. 23, 2015), <http://www.reuters.com/article/2015/02/23/us-precious-hsbc-cftc-idUSKBN0LR1C520150223>.

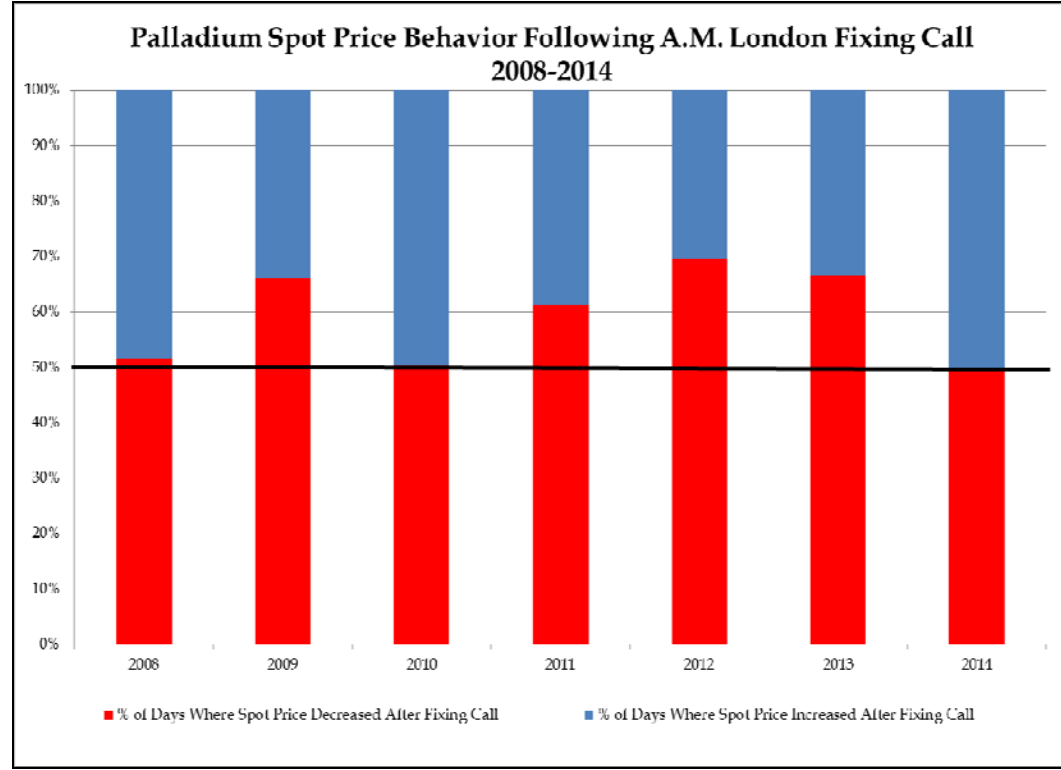
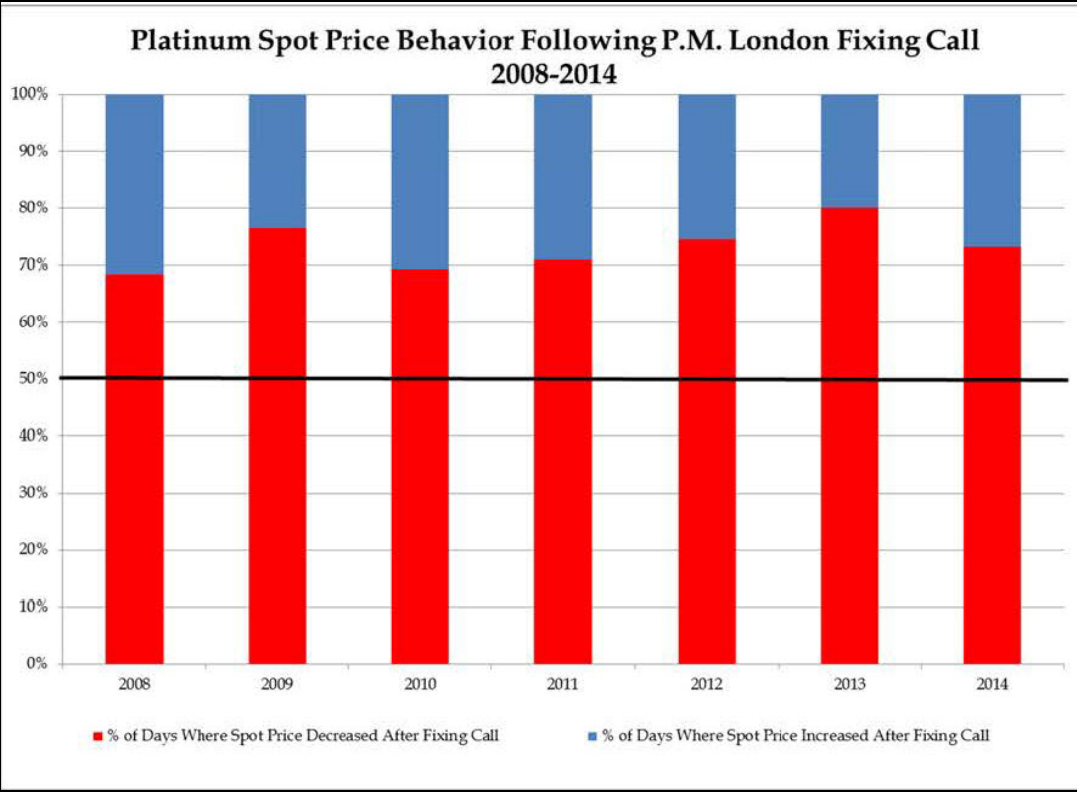
<sup>10</sup> *Id.*

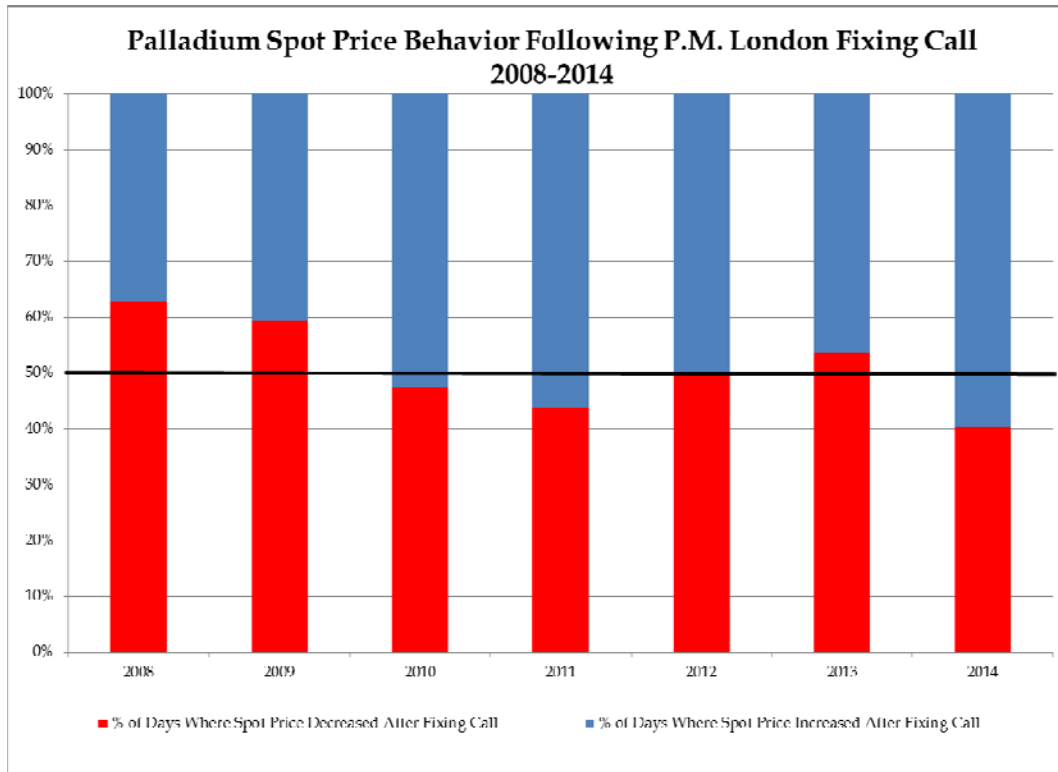
<sup>11</sup> See David McLaughlin and Tom Schoenberg, *UBS Shielded From Charges in U.S. Precious-Metals Probe*, Bloomberg (May 20, 2015), <http://www.bloomberg.com/news/articles/2015-05-20/ubs-shielded-from-charges-in-u-s-precious-metals-investigation>.

<sup>12</sup> See U.S. Senate Permanent Subcommittee on Investigations, WALL STREET BANK INVOLVEMENT WITH PHYSICAL COMMODITIES (Dec. 5, 2014) ("Senate Report"), at 9-10, <http://www.hsgac.senate.gov/subcommittees/investigations/hearings/wall-street-bank-involvement-with-physical-commodities-day-one>. Although the Senate investigation did not specifically examine platinum and palladium, it examined multiple commodities markets.

began, versus how often final AM and PM Fix prices for platinum were above the price of platinum just before the Fixing began. From 2008 through 2014, Fix prices for platinum moved lower 60% to 80% of the time and prices for palladium usually moved lower despite the fact that palladium prices were generally increasing throughout the Class Period. *See infra* ¶¶100, 109.







21. On July 31, 2014, the LPPFC announced that it was seeking an independent third party to assume responsibility for the platinum and palladium Fixing process. On October 16, 2014, the LPPFC announced that the London Metal Exchange (“LME”) had been selected to become the new administrator of the platinum and palladium Fixing process. On December 1, 2014, LME launched a new electronic Fixing system called LMEbullion and the traditional platinum and palladium Fixing process ceased.

22. Some of Defendants’ precious metals traders have lost their jobs or been placed on indefinite leave, and investigations by various government regulators are ongoing. But none of these changes have compensated the investors in platinum and palladium, and investments and securities whose value is based on platinum and palladium (together, “Platinum and Palladium Investments”<sup>13</sup>), like Plaintiffs, who were injured in their business and property by Defendants’

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<sup>13</sup> Platinum and Palladium Investments refers, without limitation, to platinum and palladium bullion and platinum and palladium bullion coins, platinum and palladium futures on

collusive and manipulative conduct. Plaintiffs seek redress in this action on their own behalf and on behalf of the proposed class.

### **JURISDICTION AND VENUE**

23. This Court has subject matter jurisdiction over this action pursuant to Sections 4 and 16 of the Clayton Act (15 U.S.C. §§ 15(a) and 26), Section 22 of the Commodity Exchange Act (7 U.S.C. § 25), and pursuant to 28 U.S.C. §§ 1331 and 1337(a).

24. Venue is proper in this District pursuant to 15 U.S.C. §§ 15(a), 22 and 28 U.S.C. § 1391(b), (c), (d) because during the Class Period all Defendants resided, transacted business, were found, or had agents in this District; a substantial part of the events or omissions giving rise to these claims occurred in this District; and a substantial portion of the affected interstate trade and commerce discussed herein has been carried out in this District.

25. The NYMEX, where much of the affected trading takes place and whose prices were manipulated, is located in the Southern District of New York.

26. This Court has personal jurisdiction over each Defendant, because each Defendant: transacted business throughout the U.S., including in this District; had substantial contacts with the U.S., including in this District; and/or committed overt acts in furtherance of their illegal scheme and conspiracy in the U.S. In addition, the conspiracy was directed at, and had the intended effect of, causing injury to persons residing in, located in, or doing business throughout the U.S., including in this District, and Plaintiffs' claims arise out of Defendants' conduct.

27. The activities of Defendants and their co-conspirators were within the flow of,

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NYMEX and other U.S. exchanges, shares of Platinum and Palladium ETFs (as defined below), over-the-counter platinum and palladium spot or forward transactions and options on any of the foregoing.



were intended to, and did have a substantial effect on the foreign and interstate commerce of the U.S.

### **THE PARTIES**

#### **A. Plaintiffs**

a. Plaintiff **Norman Bailey** is an individual residing in Ontario, Canada. During the Class Period, Mr. Bailey sold NYMEX platinum and palladium futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. Mr. Bailey was deprived of transacting in a lawful, non-manipulated, competitive market for Platinum and Palladium Investments, including in the segment for platinum and palladium futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

b. Plaintiff **Thomas Galligher** is an individual residing in Phoenixville, Pennsylvania. During the Class Period, Mr. Galligher sold NYMEX platinum futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. Mr. Galligher was deprived of transacting in a lawful, non-manipulated, competitive market for Platinum and Palladium Investments, including in the segment for platinum futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

c. Plaintiff **Larry Hollin** is an individual residing in Bala Cynwyd, Pennsylvania. During the Class Period, Mr. Hollin sold NYMEX platinum and palladium futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. Mr. Hollin was deprived of transacting in a lawful, non-manipulated, competitive market for Platinum and Palladium Investments, including in the segment for platinum and palladium futures contracts, and otherwise suffered injury to his business or property as a direct and

proximate result of Defendants' unlawful conduct.

d. Plaintiff **KPFF Investment, Inc.** f/k/a KP Investments, Inc. ("KPFF") is a California corporation with its principal place of business in Irvine, California. During the Class Period, KPFF sold physical platinum and palladium at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. KPFF was deprived of transacting in a lawful, non-manipulated, competitive market for Platinum and Palladium Investments, including in the segment for physical platinum and palladium, and otherwise suffered injury to its business or property as a direct and proximate result of Defendants' unlawful conduct.

e. Plaintiff **Ken Peters** is an individual residing in Irvine, California. During the Class Period, Mr. Peters sold physical platinum and palladium at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. Mr. Peters was deprived of transacting in a lawful, non-manipulated, competitive market for Platinum and Palladium Investments, including in the segment for physical platinum and palladium, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

f. Plaintiff **White Oak Fund LP** ("White Oak") is a private placement fund headquartered in Burr Ridge, Illinois. During the Class Period, White Oak sold NYMEX platinum futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. White Oak was deprived of transacting in a lawful, non-manipulated, competitive market for Platinum and Palladium Investments, including in the segment for platinum futures contracts, and otherwise suffered injury to its business or property as a direct and proximate result of Defendants' unlawful conduct.

**B. Defendants**

28. Whenever in this Complaint reference is made to any act, deed, or transaction of

any entity, the allegation means that the corporation engaged in the act, deed, or transaction by or through its officers, directors, agents, employees, or representatives while they were engaged in the management, direction, control, or transaction of the entity's business or affairs.

29. BASF Societas Europaea ("BASF SE") is the largest chemical producer in the world. In 2006, BASF SE completed its acquisition of Engelhard Corporation, which was one of the largest manufacturers of catalytic converters in the world. Engelhard Corporation (via a subsidiary) was a fixing member of the LPPFC up until 2006. BASF SE is organized by divisions.

30. "Precious Metals Services" is contained within BASF's Catalysts Division.<sup>14</sup> BASF's Catalysts Division is headquartered in Iselin, New Jersey under the umbrella of Defendant BASF Corporation ("**BASF Corp.**"), which is a Delaware-registered company. BASF Corporation is the parent of BASF Catalysts LLC and holds itself out as "the global leader in catalysts."<sup>15</sup> "BASF Precious Metals Services "is a full service provider of precious metals products and services [] that leverages [BASF's] unparalleled market insight and decades of precious metals sourcing, trading, and hedging expertise to create a tangible competitive advantage for BASF and [BASF's] industrial customers." "BASF Precious Metals Services are global and vertically integrated." BASF Precious Metals Services provides "24/7 access to world metals exchanges & key bullion centres via trading offices in [among other places] Iselin, New Jersey" and is a member of "The Chicago Mercantile Exchange (CME)" and "a founding member of the London Platinum and Palladium Market (LPPM)."<sup>16</sup> BASF Corp. serves as an

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<sup>14</sup> BASF Precious Metals Services, <http://www.catalysts.basf.com/p02/USWeb-Internet/catalysts/en/content/microsites/catalysts/prods-inds/prec-metal-svcs/index>.

<sup>15</sup> See BASF Catalysts, <http://www.catalysts.basf.com/p02/USWeb-Internet/catalysts/en/>

<sup>16</sup> LPPM is described herein at ¶¶65-72.

approved carrier, assayer, and refiner of platinum and palladium for CME Group in the U.S. BASF Corp. also provides CME Group approved platinum and palladium brands. This branded physical platinum and palladium is deliverable against NYMEX platinum and palladium futures contracts.

31. Defendant BASF Metals Limited (“**BASF Metals**”) is a company organized and existing under the laws of the United Kingdom with its principal place of business in London, England. After the Engelhard Corporation acquisition, BASF Metals assumed Engelhard Corporation’s role as a participating member in the Fixing. During the Class Period, BASF Metals was a participating member in the Fixing and was a market-making member of LPPM. BASF Metals describes its principal activity as “precious metals commodity dealing” and its “main objective . . . is to grow profit” through precious metals trading activities.<sup>17</sup> BASF Metals is organizationally part of and subordinate to BASF Corp. BASF’s Catalyst website, [catalysts.basf.com](http://catalysts.basf.com), lists all of the separate BASF companies that are part of the Catalysts Division and BASF Corp., among them BASF Metals Ltd.<sup>18</sup>

32. BASF Metals and BASF Corp. are collectively referred to as “BASF.”

33. Defendant Goldman Sachs International (“**Goldman Sachs**”) is a financial services company and a subsidiary of The Goldman Sachs Group, Inc. Goldman Sachs International is organized and exists under the laws of the United Kingdom with its principal place of business in London, England. Goldman Sachs also maintains precious metals trading operations in New York, New York. During the Class Period, Goldman Sachs was a participating member in the London Fixing and a market-making member of the LPPM. The

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<sup>17</sup> BASF Metals Limited Annual Report and Financial Statements for the year ended December 31, 2013, at 3.

<sup>18</sup> See BASF Precious Metals Products and Services, <http://www.catalysts.basf.com/p02/USWeb-Internet/catalysts/en/content/microsites/catalysts/prods-inds/prec-metal-svcs/prod-svcs>.

term Goldman Sachs includes Goldman Sachs International and its subsidiaries and affiliates.

34. Goldman Sachs executes client trades in the physical platinum and palladium markets, on NYMEX, in platinum and palladium derivatives, and in shares of platinum and palladium ETFs. Goldman Sachs clients can make orders at the Fixing price. Goldman Sachs operates electronic platforms for trading platinum and palladium products. Goldman Sachs also conducts proprietary trading in the platinum and palladium markets. During the Class Period, Goldman Sachs entered directly into platinum and palladium spot, forward, option and platinum and palladium ETF share transactions with members of the Class.

35. Defendant HSBC Bank USA, N.A. (“**HSBC**”), a subsidiary of HSBC Holdings Plc, is a Delaware banking and financial services company. HSBC maintains its principal place of business in Mclean, Virginia. HSBC also maintains a branch in London, England. During the Class Period, HSBC was a participating member in the London Fixing, a market-making member of the LPPM, and cleared platinum and palladium transactions. The term HSBC includes HSBC Bank USA, N.A. and its subsidiaries and affiliates.

36. HSBC executes client trades in the physical platinum and palladium markets, on NYMEX, in platinum and palladium derivatives, and in shares of platinum and palladium ETFs. HSBC clients can make orders at the Fixing price. HSBC operates electronic platforms for trading platinum and palladium products. HSBC also conducts proprietary trading in the platinum and palladium markets. HSBC also serves as an approved platinum and palladium depository and weighmaster for CME Group in the U.S. During the Class Period, HSBC entered directly into platinum and palladium spot, forward, option and platinum and palladium ETF share transactions with members of the Class.

37. Defendant ICBC Standard Bank Plc (“**Standard Bank**”), a subsidiary of Standard

Bank Group Limited,<sup>19</sup> is a banking and financial services company organized and existing under the laws of the United Kingdom. It maintains its principal place of business in London, England. During the Class Period, Standard Bank was a participating member in the London Fixing and a market-making member of the LPPM. Prior to the launch of LMEbullion in December 2014, Standard Bank was the Chair of the London Fixing. The term Standard Bank includes Standard Bank Plc and its subsidiaries and affiliates.

38. Standard Bank executes client trades in the physical platinum and palladium markets, on NYMEX, in platinum and palladium derivatives, and in shares of platinum and palladium ETFs. Standard Bank clients can make orders at the Fixing price. Standard Bank also conducts proprietary trading in the platinum and palladium markets. During the Class Period, Standard Bank entered directly into platinum and palladium spot, forward, option and platinum and palladium ETF share transactions with members of the Class.

39. Standard Bank is a member of NYMEX (COMEX) and maintains two seats. As a member of NYMEX, Standard Bank, traded platinum and palladium futures (among others) for proprietary accounts during the Class Period. Indeed, on at least one occasion during the Class Period, the COMEX Business Conduct Committee initiated disciplinary proceedings against Standard Bank because it had violated exchange rules, finding that it had jurisdiction over Standard Bank because “it was a COMEX member and that on . . . February 15, 2013, Standard Bank executed four EFRP transactions in which Standard Bank and another market participant were counterparties.”<sup>20</sup>

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<sup>19</sup> Up until 2015, ICBC Standard Bank Plc was named Standard Bank Plc. In February 2015, Standard Bank’s parent company sold a majority stake in Standard Bank to the Industrial and Commercial Bank of China (“ICBC”).

<sup>20</sup> Notice of Disciplinary Action Against Standard Bank Plc, File No. COMEX 14-9718-BC (Aug. 15, 2014), <http://www.cmegroup.com/tools->

40. Standard Bank's website holds itself out as having a substantial presence worldwide including in New York.<sup>21</sup> Standard Bank has four U.S. subsidiaries. Each of these subsidiaries is registered in Delaware with corporate offices located in this District. These U.S. subsidiaries are also regulated by various federal and state agencies.

41. Defendant **UBS AG** is a corporation organized and existing under the laws of Switzerland with its principal place of business in Zurich, Switzerland and branches and offices in New York, New York and Stamford, Connecticut.

42. Defendant **UBS Securities LLC**, a wholly owned subsidiary of UBS AG, is a Delaware company with its principal place of business in Stamford, Connecticut. It is also a futures commission merchant registered with the CFTC. As used herein, the term "**UBS**" includes UBS AG, UBS Securities LLC, and their subsidiaries and affiliates.

43. UBS is the result of the 1998 merger of two leading Swiss banks: Swiss Bank Corporation, and Union Bank of Switzerland. Both Swiss Bank Corporation and Union Bank of Switzerland had extensive operations in precious metals. Thus, since its inception UBS has operated a large precious metals business. UBS holds itself out as "a leading provider of physical and derivative precious metal products to a broad range of customers around the

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information/lookups/advisories/disciplinary/COMEX-14-9718-BC-STANDARD-BANK-PLC.html#pageNumber=1. Further, in another NYMEX disciplinary proceeding against a non-member Standard Bank entity, the NYMEX found that "two traders employed by Standard Bank prearranged five trades totaling 90 lots in Crude, Palladium and Platinum for the purpose of transferring positions between two proprietary accounts with common beneficial ownership." Notice of Disciplinary Action Against The Standard Bank of South Africa Limited, File No. NYMEX 12-9082-BC (Feb. 14, 2013), <http://www.cmegroup.com/tools-information/lookups/advisories/disciplinary/NYMEX-12-9082-BC-THE-STANDARD-BANK-OF-SOUTH-AFRICA-LIMITED.html#pageNumber=1>.

<sup>21</sup> ICBC Standard Bank Plc Website, [https://www.icbcstandardbank.com/CorporateSite/ContactUs#New\\_York](https://www.icbcstandardbank.com/CorporateSite/ContactUs#New_York).

globe.”<sup>22</sup>

44. UBS executes client trades in the physical platinum and palladium markets, on NYMEX, in platinum and palladium derivatives, and in shares of platinum and palladium ETFs. UBS operates electronic platforms for trading platinum and palladium products. UBS also conducts proprietary trading in the platinum and palladium markets. At least some of UBS’s proprietary platinum and palladium trading is managed from the Stamford office of UBS Securities LLC. During the Class Period, UBS was a market-making member of the LPPM, cleared platinum and palladium transactions, and entered directly into platinum and palladium spot, forward, option, and platinum and palladium ETF share transactions with members of the Class.

45. Defendant The London Platinum and Palladium Fixing Company Ltd. (“**LPPFC**”) is a private company organized and existing under the laws of the United Kingdom with its principal place of business in London, England. LPPFC is 100% owned and controlled by BASF Metals, Goldman Sachs, HSBC, and Standard Bank.

46. The Fixing Defendants own and control the LPPFC and the LPPFC is indistinguishable from the Fixing Defendants for jurisdictional purposes. LPPFC was founded in 2004 by the four entities that then conducted the Fixing. From 2008 to 2014, LPPFC was owned and controlled by the Fixing Defendants, the Fixing Defendants were the only members of the LPPFC, the day to day business of LPPFC was conducted by a group of directors who were selected by the Fixing Defendants (and typically were employees of the Fixing Defendants), and nearly all of LPPFC’s revenue was derived from the Fixing Defendants’ membership fees such that LPPFC was financially dependent on the Fixing Defendants. Currently, all LPPFC directors

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<sup>22</sup> UBS Website, Precious Metals, <http://www.ubs.com/global/en/investment-bank/institutions/foreign-exchange/precious-metals.html>.



are employees (mostly, if not all, senior commodities traders) of the Fixing Defendants, including: Amir Ravan of Goldman Sachs; David Benjamin Rose of HSBC; John Patrick Metcalf of BASF; Peter Dennis Drabwell of HSBC; Peter Hirst of Goldman Sachs; Rupert Prest of Standard Bank; and Katrina Cvijovic of Standard Bank.<sup>23</sup>

47. The LPPFC's only function is "to take on and continue the promotion, administration and conduct of the London Platinum and Palladium Market Fixing."<sup>24</sup> As such, at all times LPPFC was an instrumentality in Defendants' conspiracy alleged in this Complaint. LPPFC merely served as a shell for the operation of the Fixing, as a vehicle for Defendants' conspiracy, and as an agent for the Fixing Defendants. Defendants' conspiracy – via LPPFC – was targeted at and had substantial depressive effects on the platinum and palladium Fixing price and Platinum and Palladium Investments traded in the U.S., including platinum and palladium derivatives traded on the NYMEX in this District. At all times, LPPFC and its members and directors knew that the Fixing – and the Fix prices reached thereby – had a substantial effect on Platinum and Palladium Investments traded in the U.S., including platinum and palladium derivatives traded on the NYMEX in this District.

48. Various other entities and individuals unknown to Plaintiffs at this time – including other major platinum and palladium banks and institutions – participated as co-conspirators in the acts complained of, and performed acts and made statements that aided and abetted and were in furtherance of the unlawful conduct alleged herein.

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<sup>23</sup> Some of these individuals have also served on the management committee of the LPPM, including, at present, Metcalf and Cvijovic (who serves as Vice Chairman).

<sup>24</sup> LPPFC Memorandum of Association (filed Dec. 1, 2004). Although the LPPFC's incorporation documents describes a variety of activities that LPPFC engages in, all of these activities relate to the administration of the platinum and palladium Fixing.

## **FACTUAL ALLEGATIONS**

### **I. BACKGROUND ON THE PLATINUM AND PALLADIUM MARKETS**

#### **A. The London Platinum and Palladium Fixing Price Process**

49. The Fixing was a relatively recent creation. The London Platinum Quotation, the predecessor to the Fixing, was established in 1973, and was a twice-daily indication of the market price for spot platinum, reported by some of the principal companies dealing in this precious metal. However, this was an informal trading system, and in 1987 it was formalized via the establishment of the LPPM. Two years later, the Fixing was formally established for platinum and palladium.

50. During the Class Period, the Fixing was conducted by a Chair who was an LPPFC member (*i.e.*, a Fixing Defendant). The Chair was selected annually by the LPPFC members (typically rotating among the Fixing Defendants).

51. The Fixing was held out as an organized “Walrasian” auction among the Fixing Defendants for the spot price of physical platinum and palladium. Market participants sent their orders to the Fixing Defendants. In a competitive market, not subject to the Defendants’ manipulative conduct, the Fixing Defendants would have consolidated their respective customer orders, as well as any proprietary orders from their own trading desks.

52. The Fixing began with the Chair announcing a starting price (also known as the “Opening Price”) for “loco” (short for location) London or Zurich platinum or palladium, stated in U.S. dollars, which is usually at or near the current spot price. Each of the remaining three participating fixing members then declared themselves as either a net buyer or a net seller, or as having no interest at the starting price.

53. If there was no buying and no selling interest at the starting price from any participating member, the Chair announced the Opening Price as the “fixed” price. If at the

starting price there was only a selling or a buying interest, the Chair asked for figures and then either: (a) declared the price as “Fixed” if the quantity offered or sought is matched exactly or is within 4,000 troy ounces;<sup>25</sup> or (b) moved the Opening Price lower or higher until there is two-way interest – *i.e.*, a match between a net buyer and a net seller.

54. If the Chair moved the price to obtain two-way interest, the increments in which the moves occurred was determined by: (a) the prevailing bid/offer price in the platinum or palladium futures market as quoted on the CME adjusted to the physical London spot market using a prevailing Exchange for Physical (*i.e.*, an exchange of a position in the underlying physical instrument for a corresponding futures position); (b) the prevailing bid/offer price on electronic trading platforms representing the spot market price; and (c) the level of buying and selling interests declared in the Fixing.

55. The Chair chose the level of price increments it considered necessary in order to match supply with demand.

56. At any time during the Fixing, a participating member or its customers could have increased or decreased an order, withdrawn a previously declared buying or selling order, or placed a new order. In the event of such an occurrence, a participating member could have called a “flag” to suspend the Fixing so that it could recalculate its overall interest. When the flag was called, the Chair was not permitted to call the platinum or palladium prices “Fixed.”

57. When buy and sell orders were matched, the Chair declared that the prices for platinum and palladium were fixed and stated the time at which they have been fixed and the

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<sup>25</sup> A troy ounce (oz t) is a unit of measure, most commonly used to gauge the mass of precious metals. One troy ounce is defined as exactly 31.1034768 grams. There are 14.583 troy ounces in one pound.

final price in U.S. dollars.<sup>26</sup> Once the Fix prices for platinum and palladium had been declared by the Chair, buy and sell orders declared in relation to those Fix prices could not be altered or withdrawn by the firms participating in the Fixing. The Chair also provided the equivalent trading prices in pounds sterling and euros using the then-prevailing exchange rates published on Bloomberg or Reuters and read out these rates at the end of the call.

58. The Chair then matched up the participating firms' orders and specified the trades that must then be executed between the participating firms. The Chair filled the largest seller's order first by matching that order with the largest buyer's order, with the participating firms' orders then being matched in descending order size.

59. Where the Chair had been unable to match supply and demand exactly and had instead declared the price as fixed when the difference between quantities of platinum and palladium bid and offered was 4,000 troy ounces or less, the Chair pro-rated the difference between supply and demand between the participating firms.

60. Cash-settled, platinum- and palladium-based financial products, such as futures and options, are directly impacted by the physical prices assessed through the Fixing.

61. In an open and transparent system of price discovery for platinum and palladium, all market participants should have the opportunity to see in real-time bids and offers for platinum and palladium to gauge their prices. However, the Fixing was designed in a manner that held market participants hostage to the dealings of four large and heavily self-interested participants in the platinum and palladium markets, *i.e.*, the Fixing Defendants. This gave the Defendants the opportunity and motive to manipulate the prices reached by the Fixing to their advantage, particularly with respect to their own holdings in both platinum and palladium and

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<sup>26</sup> The London Platinum and Palladium Market generally expresses prices in U.S. dollars.

Platinum and Palladium Investments, like futures and options.

62. During the Class Period, the Fixing occurred twice daily: 9:45 a.m. GMT (the AM Fixing) and 2:00 p.m. GMT (the PM Fixing), the latter to accommodate the U.S. trading day. During each fixing call, the fixing members first set the price of platinum and then set the price of palladium. During the Class Period, the four participating members in the Fixing were Defendants Standard Bank, BASF Metals (obtaining its seat after its acquisition of Engelhard Metals Limited in May 2006), Goldman Sachs, and HSBC. Prior to the launch of LMEbullion in December 2014, Standard Bank was the Chair of the Fixing.

63. For the majority of the Class Period, the Fixing was carried out by the Fixing Defendants via the LPPFC. However, on October 16, 2014, the LPPFC announced that it would no longer bear responsibility for administering the Fixing.<sup>27</sup> Instead, from December 1, 2014 onward, the LME would be the new administrator of the Fixing. The LME replaced the original Fixing with LMEbullion which “provides a fully automated price-discovery process, holding two daily auctions at 9:45am and 2pm. Authorised traders participate through a secure web interface, where they can view the auction price and each submit their interest until a final price is set. LMEbullion . . . provid[es] near real-time auction commentary and anonymised buy/sell figures.”<sup>28</sup>

64. LMEbullion requires a quorum of participants for an auction to progress.<sup>29</sup> When

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<sup>27</sup> LPPFC Press Statement (Oct. 16, 2014), <http://www.sharpsixley.com/uploads/StatementfromLondonPlatinumandPalladiumFixingCompanyLtd161014.pdf>.

<sup>28</sup> LME Press Release, *LME announces successful launch of LBMA Platinum and Palladium Prices* (Dec. 4, 2014), [www.lme.com/news-and-events/press-releases/press-releases/2014/12/lme-announces-successful-launch-of-lbma-platinum-and-palladium-prices](http://www.lme.com/news-and-events/press-releases/press-releases/2014/12/lme-announces-successful-launch-of-lbma-platinum-and-palladium-prices).

<sup>29</sup> LME Press Release, *LBMA Platinum Price and LBMA Palladium Price* (undated), [www.lme.com/~media/Files/Metals/Precious%20Metals/LBMA%20Platinum%20and%20Palladium%20Prices%20from%20the%20LME.pdf](http://www.lme.com/~media/Files/Metals/Precious%20Metals/LBMA%20Platinum%20and%20Palladium%20Prices%20from%20the%20LME.pdf)

the auction commences, traders indicate their interest in displayed potential execution prices. The price is fixed when the interest of all participants is “within the permitted tolerance.”<sup>30</sup> If the interest is outside of the permitted range, a new price is calculated and displayed in another “round” and participants re-select their interest in the new potential execution prices until a price is set. Once prices are set, prices are disseminated via LMEbullion, LME.com and data distributors.

**B. The London Platinum and Palladium Market**

65. The LPPM was established in 1987. The LPPM is a trade association that acts as the coordinator for activities conducted on behalf of its members and other participants in the market for London platinum and palladium (described below). The LPPM also sets standards for “London Good Delivery” – a set of rules prescribing the physical characteristics of platinum and palladium bars used in settlement in London Platinum and Palladium Market transactions.

66. The LPPM is overseen by a Chairman and Management Committee, which are elected annually by LPPM members. The LPPM Management Committee consists of a small group (less than ten) of representatives from major platinum and palladium banks and institutions. The Defendants have been actively involved in the Management Committee. For example, as of July 2015, BASF, HSBC, and Standard Bank each have a representative on the Management Committee and Standard Bank’s representative also serves as Vice Chairman.

67. The LPPM currently has 13 market-making full members, 6 ordinary full members, 33 associate members, and 47 affiliates.

68. Full membership is open to companies which are both: (a) recognized by the LPPM as being currently engaged in trading and dealing in platinum and palladium and have an

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<sup>30</sup> *Id.*

appropriate level of net assets and experience; and (b) offer additional services including market-making, clearing services, refining, or manufacturing.

69. Associate membership is open to companies which are recognized by the LPPM as being currently engaged in trading and dealing in platinum and palladium and have an appropriate level of net assets and experience.

70. Affiliation is open to companies which fail to meet the requirements for membership but are still recognized by the LPPM as being involved with or offering support to the global platinum and palladium markets.

71. The 13 market-making members are the heart of the LPPM. The market-making members quote buying and selling prices for spot delivery and provide liquidity to the market. The Defendants are all market-making members of the LPPM.

72. In 2001, a group of banks formed a company called the London Precious Metals Clearing Limited (“LPMCL”). In 2009, six banks who are members of the LPMCL began to offer to clear transactions in platinum and palladium: Defendants HSBC and UBS along with Barclays Bank plc, Deutsche Bank AG, JP Morgan Chase Bank NA, and The Bank of Nova Scotia – Scotia Mocatta.

**C. The Market for London Platinum and Palladium**

73. Platinum is a dense, highly unreactive gray-white metal. Palladium is a sister metal to platinum that is silvery-white. Platinum and palladium have similar chemical properties, but palladium has a lower melting point and is less dense than platinum. Platinum and palladium have a variety of industrial and commercial uses such as in catalytic converters,<sup>31</sup>

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<sup>31</sup> A catalytic converter is a vehicle emissions control device that converts toxic pollutants in exhaust gas to less toxic pollutants. Catalytic converters are most often used in automobiles. Palladium is primarily used for catalytic converters in gasoline driven cars (mostly

laboratory equipment, electrodes, and dentistry equipment. However, as noted by a U.S. Senate Subcommittee report, “While platinum and palladium – like gold and silver – have industrial uses, all four have traditionally been traded internationally as precious metals, held primarily for their exchange value rather than industrial use.”<sup>32</sup>

74. Platinum and palladium have a relatively recent history. Platinum was only categorized a precious metal in the mid-1700s and palladium was isolated as a separate metal around 200 years ago. London did not become a center for physical platinum and palladium trading until the 1970s.

75. The market for London platinum and palladium operates on an over-the-counter (“OTC”) basis. The trading activity that comprises the market for London platinum and palladium consists of the following: (1) platinum and palladium clearing by certain LPMCL members, including Defendants HSBC and UBS; (2) platinum and palladium vaulting, including by some of the Defendants such as Defendant HSBC; (3) the London Good Delivery system and rules; (4) pricing by LPPM market-makers, including the Defendants; and (5) platinum and palladium accounts held by the Defendants and others. The activity that occurs within the market for London platinum and palladium is referred to as “Loco London.”

76. Platinum and palladium in the London market are generally traded in bars measured in troy ounces. Platinum and palladium are also produced industrially in a powder form called “sponge,” which has a high inherent surface area conducive to exploitation of the metals’ chemical and catalytic characteristics.

77. As described in this Complaint, the Fixing – operated by the Fixing Defendants

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driven in areas such as the U.S. and China) whereas platinum is primarily used in catalytic converts for diesel fuel cars (mostly driven in areas such as Europe).

<sup>32</sup> Senate Report, *supra* n.12, at 353.



via LPPFC – is an integral part of the market for London platinum and palladium as well as global markets – including U.S. markets – for platinum and palladium and Platinum and Palladium Investments. The Fixing prices acted as benchmarks for platinum and palladium and Platinum and Palladium Investments globally and were widely published.

**D. The Fixing Directly Impacts Prices for Platinum and Palladium Investments**

**1. Physical and derivative platinum and palladium investments**

78. The global physical platinum and palladium markets are large, opaque, and complex OTC markets, and operate alongside active and more transparent exchange based and non-exchange based platinum and palladium derivatives markets.

79. Like most commodities, the prices of platinum and palladium are driven – or at least are supposed to be driven – by supply and demand. As discussed above, the Fixing was held out as a procedure to find the equilibrium price, at which the demand for platinum and palladium equals the supply through an auction by the Fixing Defendants.

80. Some of the international demand for platinum and palladium is met through spot contracts on the OTC segment of the markets. A spot contract is a contract where a buyer and a seller agree to settlement (payment and delivery) on a spot date, which is normally two business days after the trade date. The settlement price is called the spot price. Sales at “spot” are often tied or keyed to the relevant metal’s Fixing on the day of the sale.

81. The spot platinum and palladium markets are OTC markets with no central exchange, operating 24-hours a day. Major players in the platinum and palladium spot markets include members and affiliates of the LPPM, including the four participants in the Fixing – Defendants Standard Bank, BASF Metals, HSBC, and Goldman Sachs – and Defendant UBS. These entities and others compete for customers in the platinum and palladium markets.

82. Numerous other participants enter the platinum and palladium markets from time

to time, including platinum and palladium producers (*e.g.*, miners and refiners), consumers (*e.g.*, jewelers and industrials), and investors (*e.g.*, pension funds, hedge funds, and individuals). From 2009 to 2013, the autocatalyst and jewelry segments of the platinum market comprised the two largest sources of demand. In 2013, gross demand for platinum was over 8 million ounces, and gross demand for palladium was over 9.6 million ounces.

83. Apart from physical platinum and palladium OTC transactions, some of the most heavily traded platinum- and palladium-based financial products are platinum and palladium futures and options. The aggregate annual value of platinum futures has surpassed \$100 billion each year since 2011. The aggregate annual value of palladium futures has surpassed \$40 billion since 2011.

84. The markets for platinum and palladium derivatives involve financial instruments whose value depends on the underlying price of physical platinum or palladium on the spot market. Platinum and palladium derivatives include platinum and palladium futures and options contracts. A platinum or palladium futures (or forward) contract is a bilateral agreement for the purchase or sale of an agreed amount of platinum or palladium at a specified date in the future. That type of contract can be traded over-the-counter (a forward) or on an exchange (a future). In the U.S., most exchange-traded platinum and palladium futures and options are traded on NYMEX, which has been designated by the CFTC as a contract market pursuant to Section 5 of the Commodity Exchange Act, 7 U.S.C. § 7. NYMEX is an organized centralized market that provides a forum for trading NYMEX platinum and palladium futures and options contracts.

85. For each platinum and palladium futures contract, the buyer takes a “long” position on platinum or palladium, meaning it agrees to pay for a specified amount of platinum or palladium and take delivery at the expiry of the contract. The seller takes a “short” position,

meaning it will make delivery and receive payment for the platinum or palladium. Only a small percentage of all futures contracts traded each year on NYMEX and other exchanges result in actual delivery of the underlying commodities. Instead of taking physical delivery of platinum or palladium, traders generally offset their futures position before their contracts mature.

86. For example, a purchaser of a platinum or palladium futures contract can cancel or offset its future obligation to the contract market or exchange clearinghouse to take delivery of platinum or palladium by selling an offsetting futures contract. The difference between the initial purchase or sale price and the price of the offsetting transaction represents the realized profit or loss.

87. Platinum and palladium option contracts can be traded OTC or on an exchange. A call gives the holder of the platinum or palladium option the right, but not the obligation, to buy the underlying platinum or palladium futures contract, or the underlying metal itself, at a certain price – the “strike” price – up until a fixed point in the future (*i.e.*, the option’s expiry). A put gives the holder the right, but not the obligation, to sell the underlying platinum or palladium futures contract, or the underlying platinum or palladium itself, at the strike price until the option’s expiry. An investor that buys a put option generally expects the price of platinum or palladium to fall (or at least seeks to protect against downside risk), and an investor that buys a call option generally expects the price of the relevant metal to rise. The price at which an option is bought or sold is called the “premium.”

88. Through these various contracts and trades, there are many ways to “go short” (*i.e.*, profit from price decreases) or “go long” (*i.e.*, profit from price increases). The entity that is short benefits as prices fall. The seller of a futures contract, for instance, can then offset the position by purchasing another futures contract, pocketing the difference in price. The seller of a

call option benefits if the spot price falls below the strike price, since the seller collects the option premium and pays nothing to the purchaser. At expiry, if the price of platinum or palladium exceeds a call option's strike price, the rational holder will exercise the call option, which means the seller of the call option, if unhedged, will have to sell the futures contract at the strike price and cover its position, paying the difference between the prevailing price and the strike price.

## 2. Platinum and palladium exchange-traded funds

89. Exchange-traded funds ("ETFs") issue securities that track an industry index (*e.g.*, the S&P 500), a commodity (*e.g.*, gold or silver), or a basket of assets in the same way as an index fund, but which are shares that trade on an exchange. Securities issued by ETFs experience price changes throughout the day reflecting supply and demand as they are bought and sold, where that supply and demand is heavily influenced by supply and demand within the industry, or for the commodity or assets, that the ETF tracks.

90. There are ETFs that invest only in platinum or palladium and whose shares are linked directly to platinum or palladium prices ("Platinum and Palladium ETFs"). The largest Platinum ETF is Physical Platinum Shares ("PPLT"); the key Palladium ETF is Physical Palladium Shares ("PALL"). The goal of PPLT and PALL is for their shares to reflect the performance of the price of platinum and palladium, respectively.<sup>33</sup> The price of shares issued by these ETFs correlates very closely to the spot price of platinum or palladium itself.

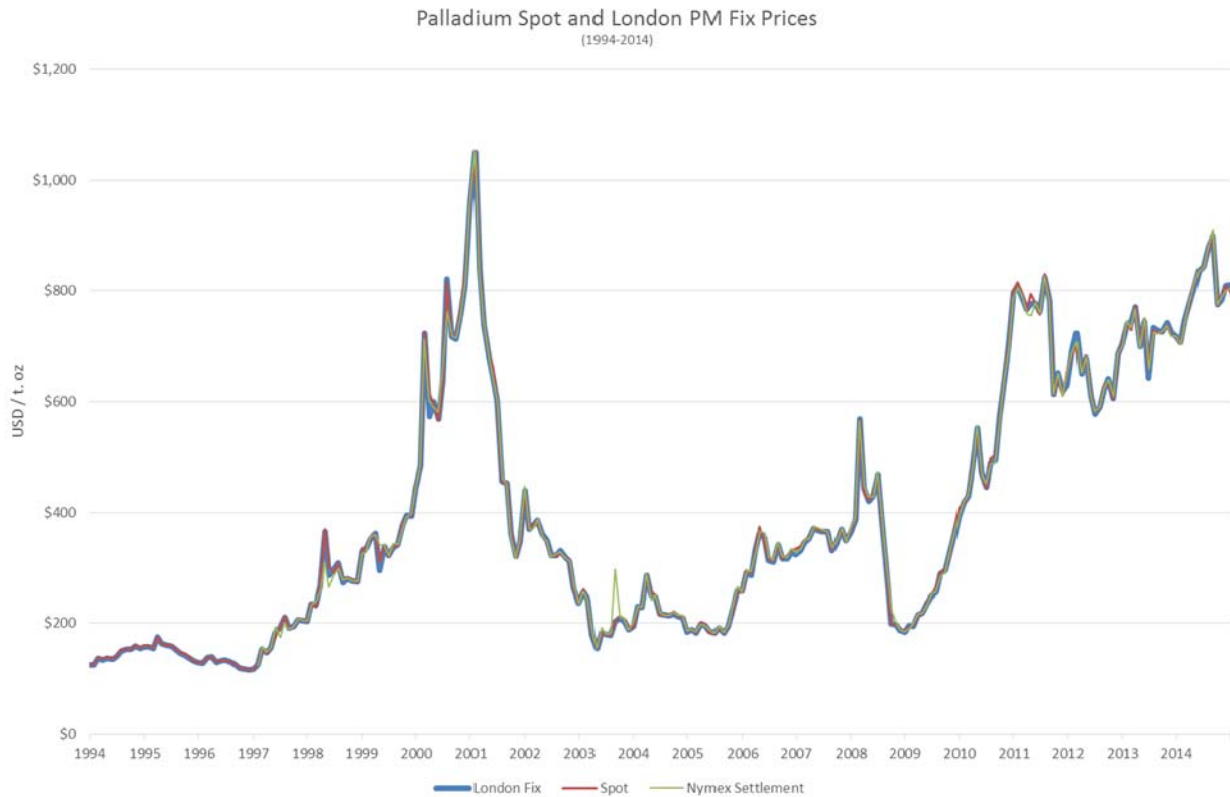
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<sup>33</sup> See, *e.g.*, ETFS PPLT Prospectus (Dec. 2, 2014), at 23: "The investment objective of the Trust is for the Shares to reflect the performance of the price of physical platinum, less the Trust's expenses."; ETFS PALL Prospectus (Dec. 2, 2014), at 23: "The investment objective of the Trust is for the Shares to reflect the performance of the price of physical palladium, less the Trust's expenses."

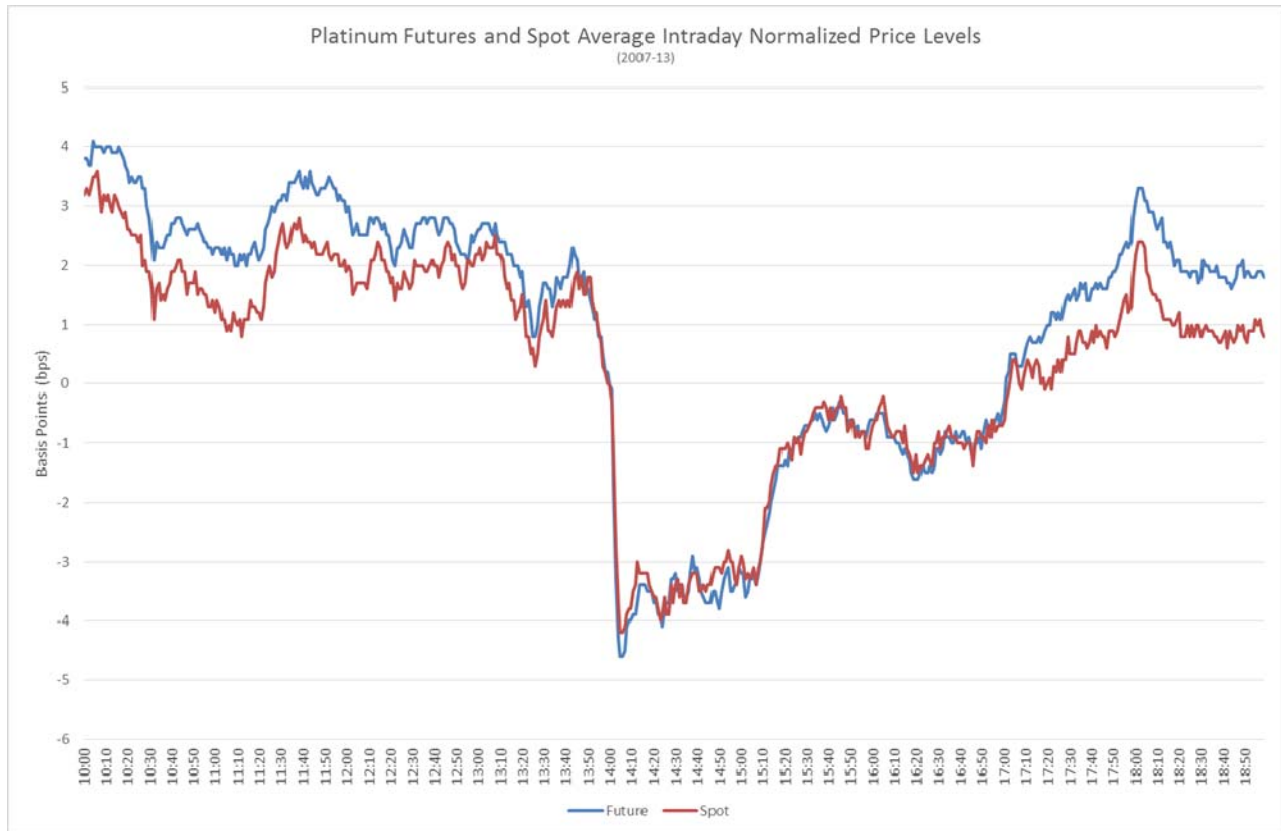
### 3. The Fixing impacts prices of physical and derivative investments, including futures, options, and ETFs

91. The Defendants seized upon the Fixing as a means to manipulate platinum and palladium prices because the Fix prices are used as global benchmarks. Many physical supply contracts – such as contracts for the sale of raw platinum or palladium by miners – explicitly incorporate prices from the Fixing. The Fixing also impacts the price of platinum and palladium futures and options on these futures contracts. This is because exchange prices closely track the price of spot platinum or palladium. Changes in the price of one will be almost immediately reflected in the other. The spot, Fix, and NYMEX settlement prices exhibit an almost perfect correlation. This tight correlation is seen in the following charts.

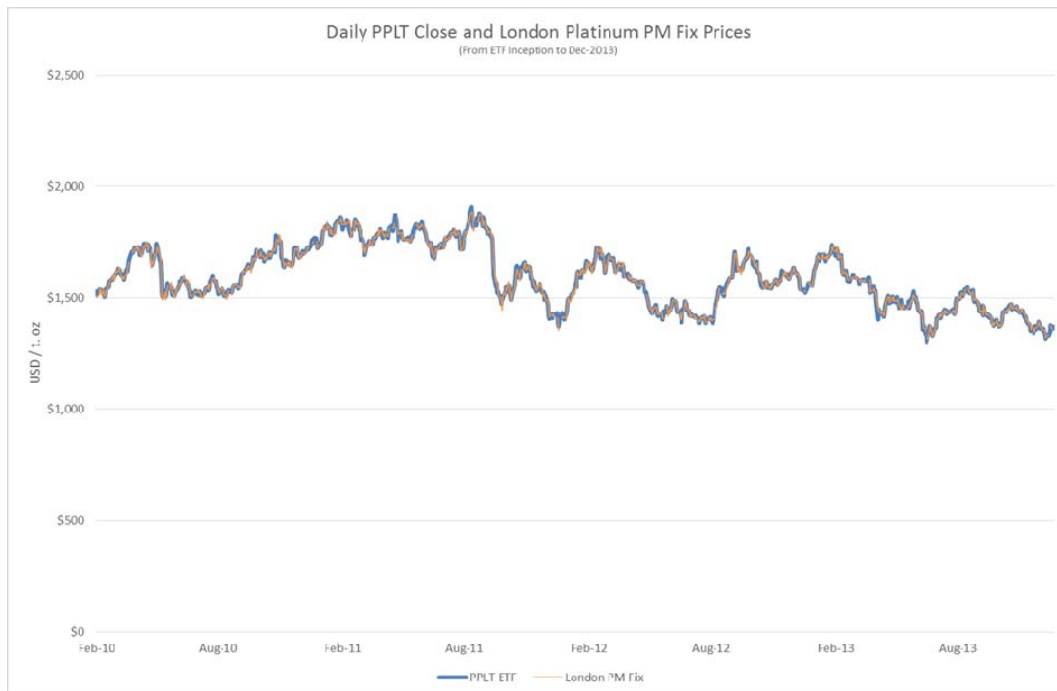




92. To confirm the correlation between prices reached at the Fixing and in the markets for Platinum and Palladium Investments, economists retained by Plaintiffs also analyzed spot, futures, and ETF price data, and concluded that platinum or palladium futures contracts are significantly impacted by the Fixing. The following chart depicts the daily normalized average intraday platinum spot prices (in red) and NYMEX futures prices (in blue), and illustrates how closely the spot and NYMEX prices were correlated from 2007 through 2013. For present purposes, the chart is presented to confirm that the two move in tandem. But it is also worth noting that, like many other studies performed in connection with this complaint, the data here shows a large anomalous downwards spike around the time of the Fixing – not just in spot prices, but in NYMEX prices as well.



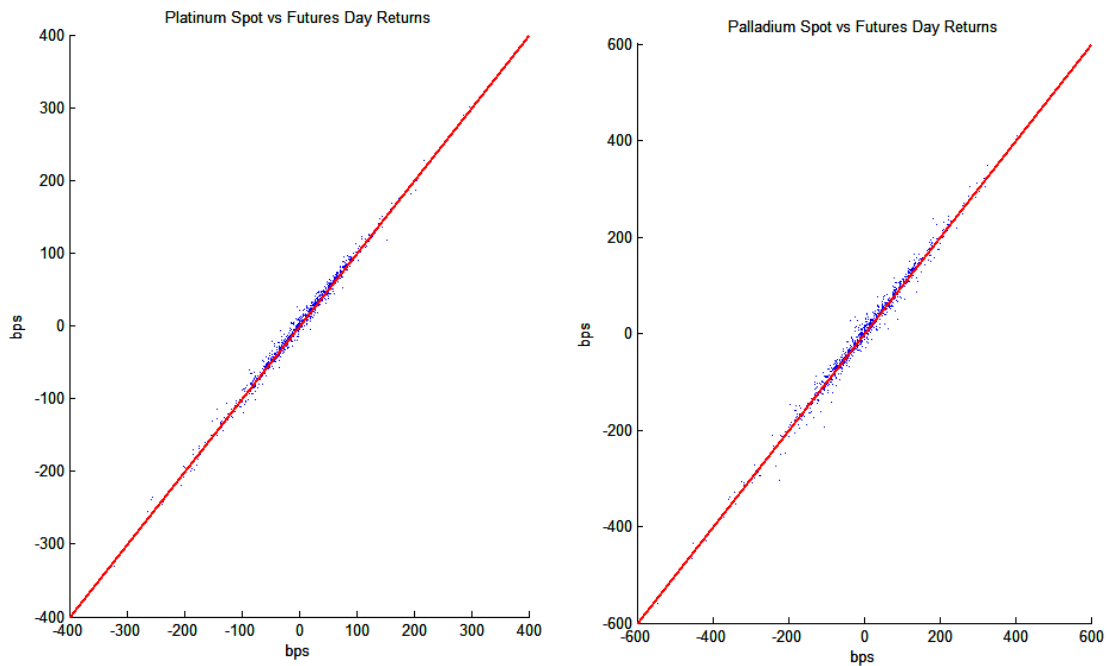
93. The next chart confirms that prices of platinum and palladium ETF shares, too, move in unison with movements in the Fix price. The chart tracks prices on the daily Fixing and the daily prices of PPLT and PALL. Once again, the Fixing prices for platinum and palladium and prices for the PPLT and PALL ETFs are virtually indistinguishable.

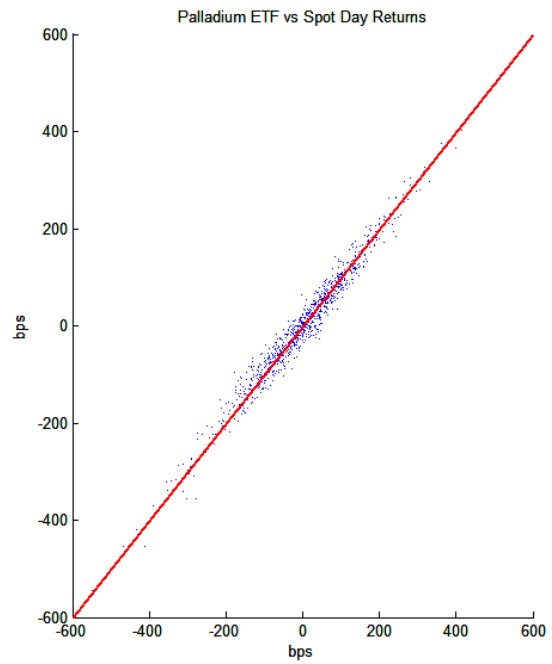
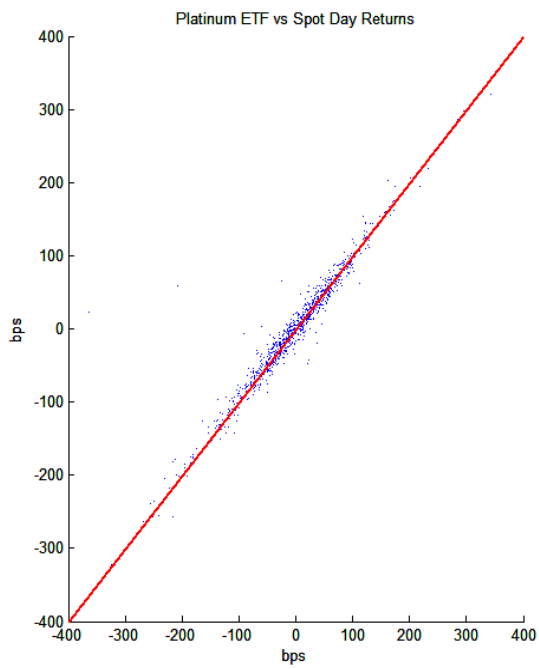
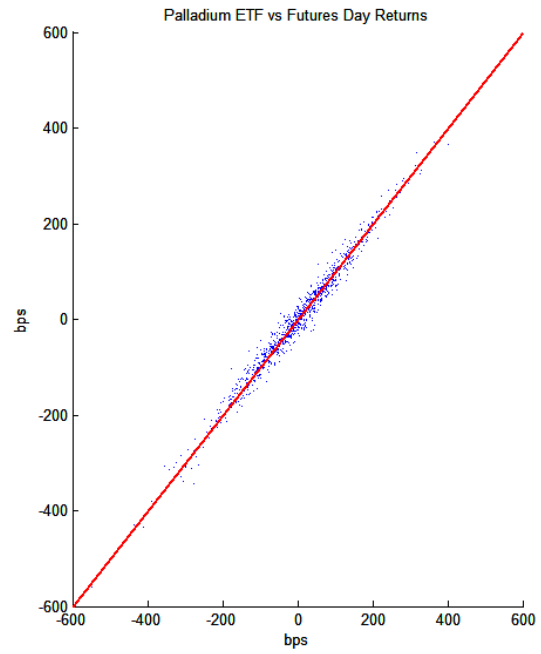
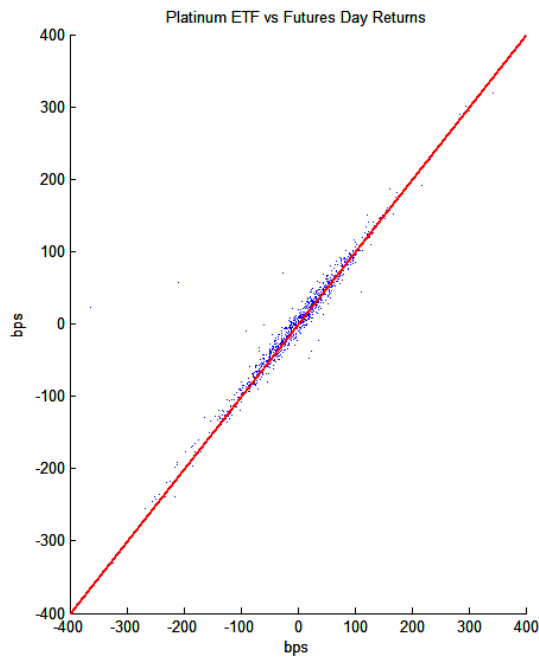


94. Another way to see the tight correlation between prices in the ETF, futures, and spot markets for Platinum and Palladium Investments is to plot the prices on a graph and to measure the correlation between them. On the charts below, the red line represents a theoretical line of perfect correlation, *i.e.*, as the prices in one of the ETF, futures or spot markets for



Platinum and Palladium Investments moved, the other moved in the exact same relative amount at the exact same time. The blue dots represent actual pricing data. The tight clustering of the actual pricing data around the red line again confirms that, as the Fixing prices move, so too do prices in the ETF, futures and spot markets.





95. The correlation coefficients of prices in the markets for Platinum and Palladium demonstrated by the above charts – where a correlation coefficient of “1” would be perfect correlation – are as follows:

- a. Platinum Spot to Futures = 1.00
- b. Palladium Spot to Futures = 0.99
- c. Platinum ETF to Futures = 0.97
- d. Palladium ETF to Futures = 0.98
- e. Platinum ETF to Spot = 0.96
- f. Palladium ETF to Spot = 0.98

96. These relationships make sense: the various instruments (Spot, Futures and ETFs) have a common underlying economic good, be it platinum or palladium. Any price changes in one instrument are very quickly transmitted and imputed in the others. Arbitrageurs actively monitor and rapidly trade away any price differentials that may momentarily exist, keeping the markets of these instruments tightly correlated.

97. As expanded upon below, the Defendants frequently manipulated the Fixing so that Fix prices would set at lower levels than competitive market forces would have dictated. This not only caused artificially low prices in the spot market, but also – because of the relationships discussed above – artificially lowered prices on NYMEX for both futures and options, for securities of platinum or palladium ETFs, and for other Platinum and Palladium Investments. Thus, the Defendants’ suppression of the platinum and palladium benchmarks directly affected the price of Platinum and Palladium Investments, causing the Class to sell these investments at artificially low prices.<sup>34</sup>

98. As indicated above, Plaintiffs sold Platinum and Palladium Investments on days that have been identified by Plaintiffs as being days on which the price for platinum and/or

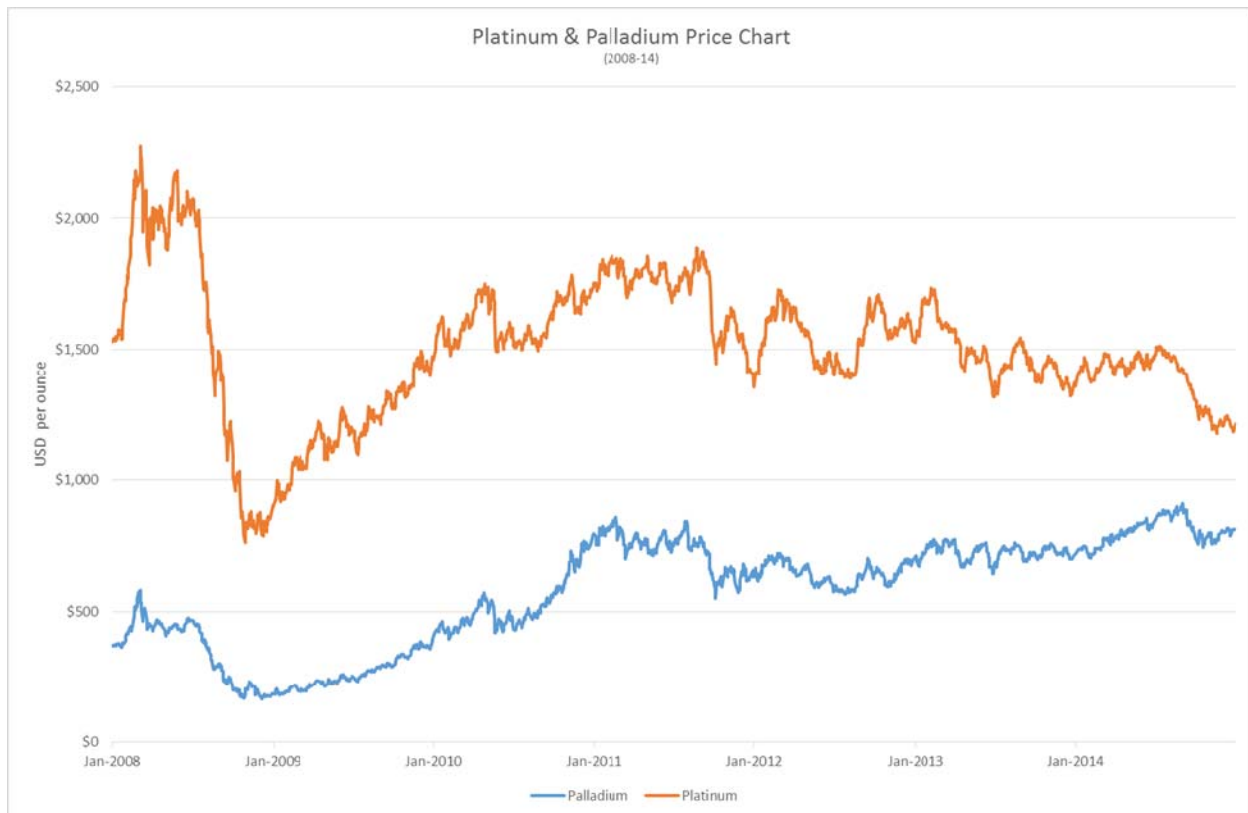
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<sup>34</sup> Plaintiffs do not have comparable price information for OTC platinum or palladium derivatives, but expect to find the same close price correlation when this information is provided through discovery.

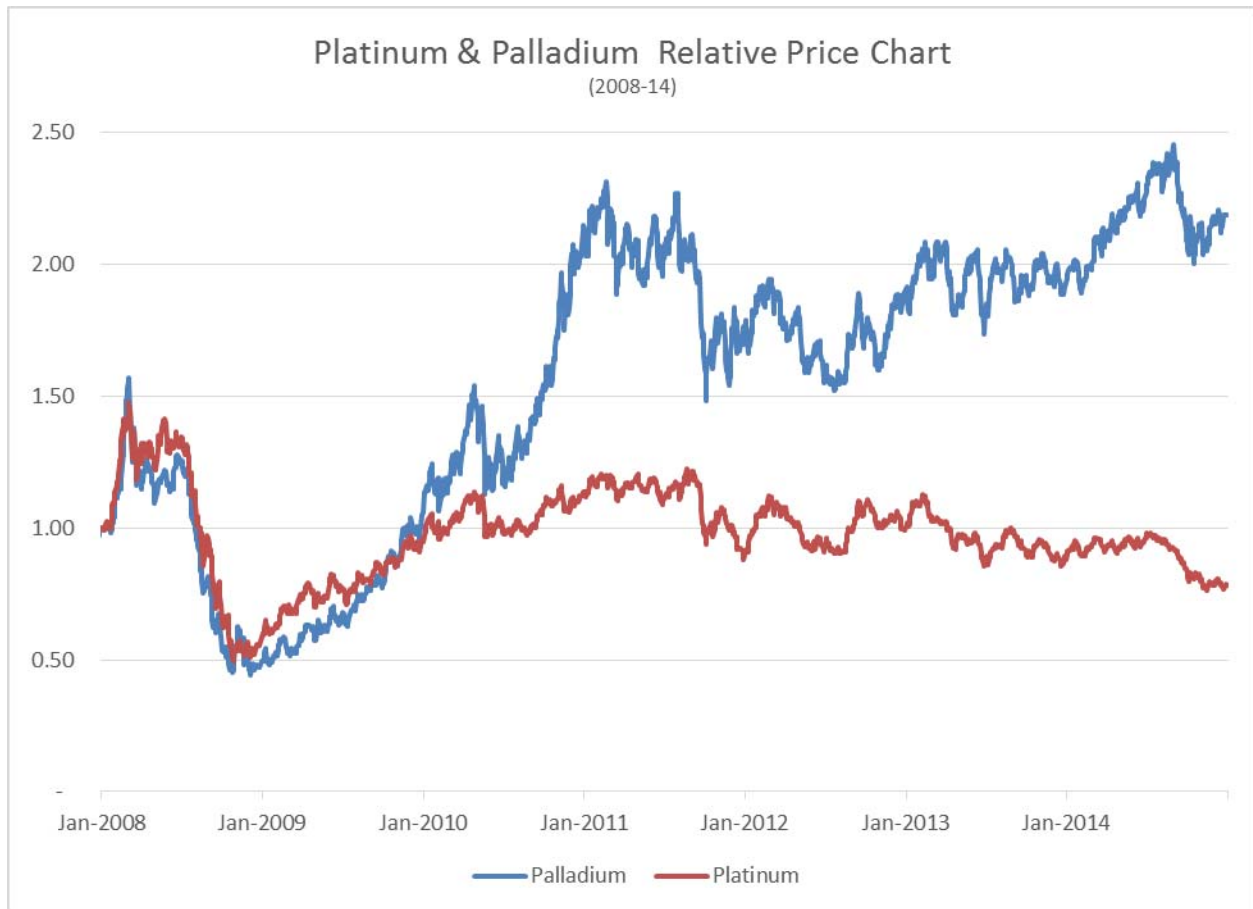
palladium was suppressed, in accordance with the methodologies discussed below. They were, thus, like all other Class Members, directly impacted by the Defendants' manipulation of the markets for Platinum and Palladium Investments. Indeed, the PPLT ETF uses the PM Fix platinum price and the PALL ETF uses the PM Fix palladium price as their respective benchmarks. The respective platinum and palladium PM Fix price is also the primary input used to value the platinum and palladium held by PPLT and PALL ETFs at the end of each business day.

**4. Platinum and palladium prices generally move in the same direction and the price of platinum can affect the price of palladium and vice versa**

99. As noted above, platinum and palladium are closely related precious metals. As can be seen in the chart below, the prices of platinum and palladium roughly track each other. As a result, the AM and PM Fix for each metal can have an effect on the price of the other metal.



100. Although platinum has traditionally been far more expensive than palladium, the gap closed significantly during the class period. Since 2008 palladium prices have been in a general upward trend driven by strong demand in the automotive sector (particularly in the U.S. and China).<sup>35</sup>



## II. MULTIPLE ECONOMIC ANALYSES REVEAL ARTIFICIAL DOWNWARD SPIKES AROUND THE TIME OF THE FIXING

101. As confirmed by Congressional testimony and academic publications, “screens” are statistical tools based on economic models that use data such as prices, bids, quotes, spreads, market shares, and volumes to identify the existence, causes, and scope of manipulation,

<sup>35</sup> In a typical year, up to 70% of physical palladium supply is used in the automotive sector.

collusion, or other illegal behavior. For instance, the use of “screens” was part of the initial analysis that eventually led to the discovery of the LIBOR rate-setting scandal that is still roiling the banking industry. Experts and reporters uncovered anomalous behavior in that interest-rate benchmark as compared to movements in other publically available data points (data points that were independent of the banks’ purported individualized judgment).<sup>36</sup> Screens also led to the initial detection, in the summer of 2013, of foreign exchange benchmark collusion and manipulation, which resulted in billions of dollars of first round settlement payments by banks in the U.S., the U.K., and Switzerland in November 2014.<sup>37</sup>

102. The “screens” developed and employed by Plaintiffs show signs of manipulation occurring within the platinum and palladium markets. The data reveals that the price spikes occur far more often around the Fixing than during any other part of the day. The data further reveals that those price spikes are greater in severity than price spikes during other times of the day. And the spikes occurring around the AM and PM Fixing are disproportionately in one direction – down. Further, when prices decrease during the Fix, they almost always decrease by larger magnitudes than when prices increase during the Fix.

103. It is telling that these spikes often begin *before* the official Fixing commences, because it is only the Defendants (and their co-conspirators) working together who could know where the Fix prices would end up. The evidence provided by all of these screens is overwhelming. Prices around the Fixing not only moved abnormally and sharply in one direction, but they acted in a way that is most plausibly explained by the joint manipulative

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<sup>36</sup> See generally Testimony of Rosa M. Abrantes-Metz on behalf of the Office of Enforcement Staff, Federal Energy Regulatory Commission (Sept. 22, 2014), [http://elibrary.ferc.gov/idmws/doc\\_info.asp?document\\_id=14274590](http://elibrary.ferc.gov/idmws/doc_info.asp?document_id=14274590).

<sup>37</sup> See Liam Vaughan and Gavin Finch, *Currency Spikes at 4 P.M. in London Provide Rigging Clues*, Bloomberg (Aug. 27, 2013), [www.bloomberg.com/news/2013-08-27/currency-spikes-at-4-p-m-in-london-provide-rigging-clues.html](http://www.bloomberg.com/news/2013-08-27/currency-spikes-at-4-p-m-in-london-provide-rigging-clues.html).

conduct of the entities in charge of the Fixing and their co-conspirators.

104. These spikes are contrary to what economic theory predicts should happen. One would naturally and statistically expect – when a large and diverse set of days over a period of years is studied – the prices during each day’s Fixing windows to move up equally as often as down. This is called the “random walk” theory of efficient markets. This theory was developed by University of Chicago professor and 2013 Nobel laureate Eugene Fama. This theory has long recognized that when measured on a given time frame day to day markets are expected to go up during that time frame approximately as often as they go down.<sup>38</sup>

105. The most plausible explanation for the spikes given what is now known is that alleged herein: manipulation. The likelihood that prices not only would randomly spike around the Fix, but also do so in a highly asymmetrical fashion, day after day and year after year, is so improbable as to be non-existent--on the order of less than .00001% of the time.

**A. The AM and PM Fix Prices Were Often Below the Spot Price at 9:45 a.m. and 2:00 p.m.**

106. One method of uncovering anomalies in the behavior of prices around the time of the Fixing is to chart on how many days the spot price at 9:45 a.m. London Time (the start of the AM Fixing) and 2:00 p.m. London Time (the start of the PM Fixing) were higher than the eventual AM and PM Fix price, however many minutes later the AM and PM Fixing concluded. That is, how often the AM and PM Fixing resulted in a lower spot price.

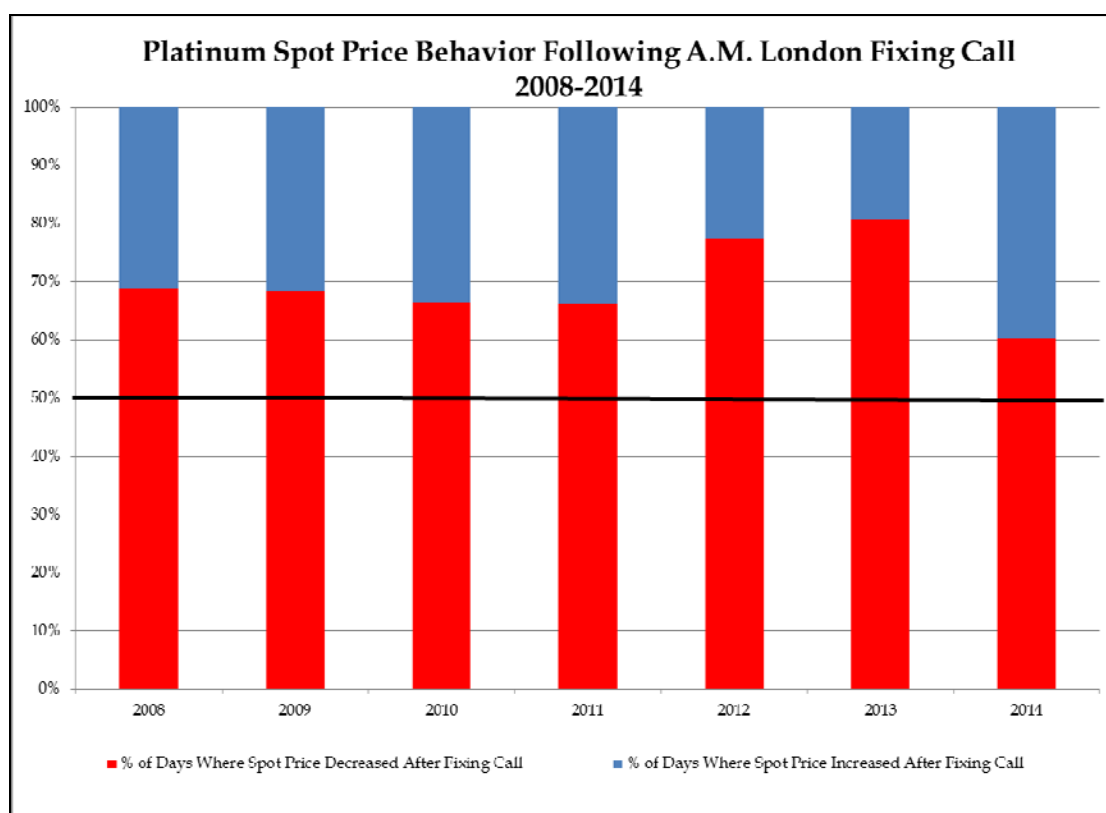
107. Indeed, the opening of the “auction” begins with what is supposed to be the current spot price. While prices can and do move as the Fixing unfolds, there is no reason

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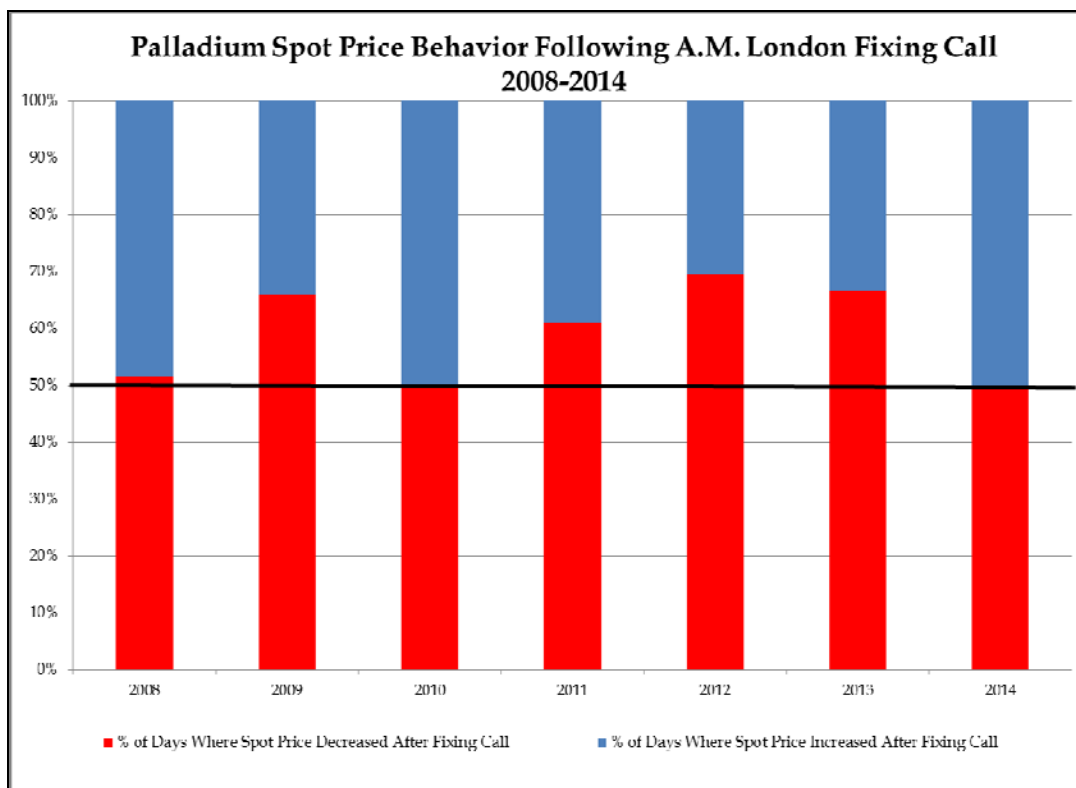
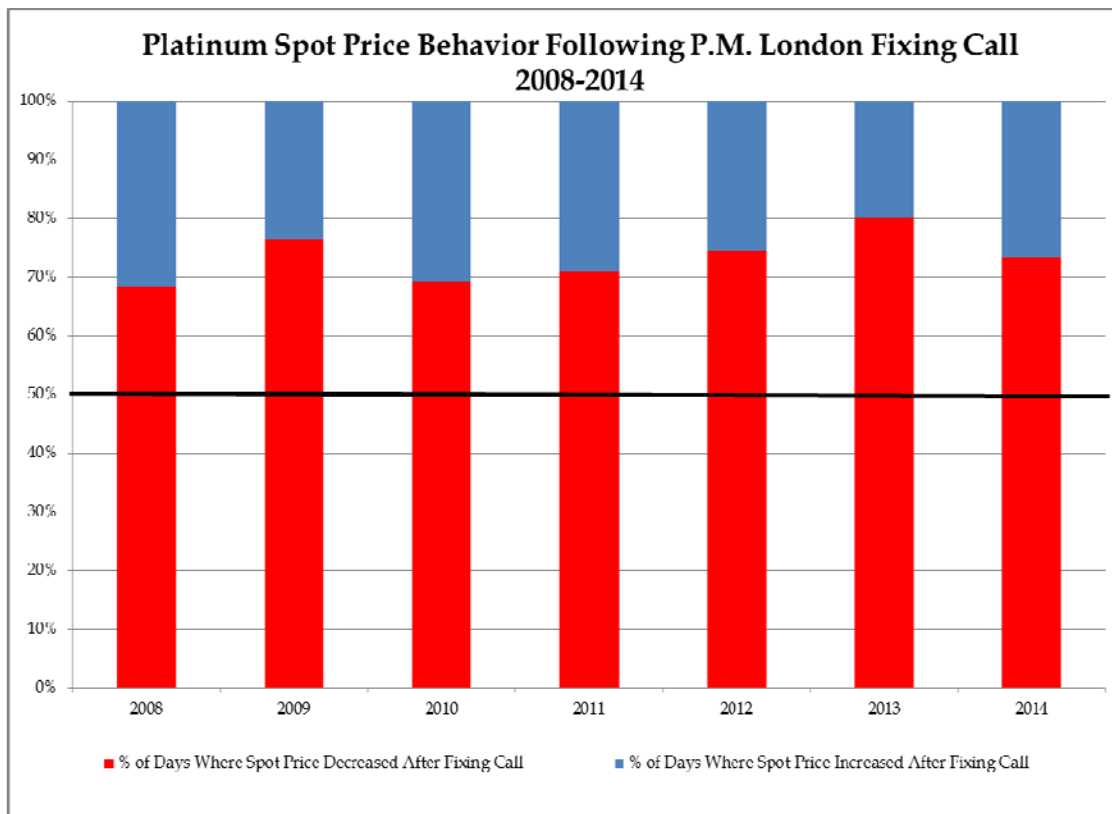
<sup>38</sup> See Eugene Fama, “The Behavior of Stock-Market Prices, *Journal of Business*, Vol. 38, Issue 1 (1965); Eugene Fama, “Efficient Capital Markets: A Review of Theory and Empirical Work,” *Journal of Finance*, Vol. 25 (1970); J.P. Botha, “The Random Walk Model and the Behaviour of Gold Prices: A Note,” *The Investment Analysts Journal*, No. 15 (1980).

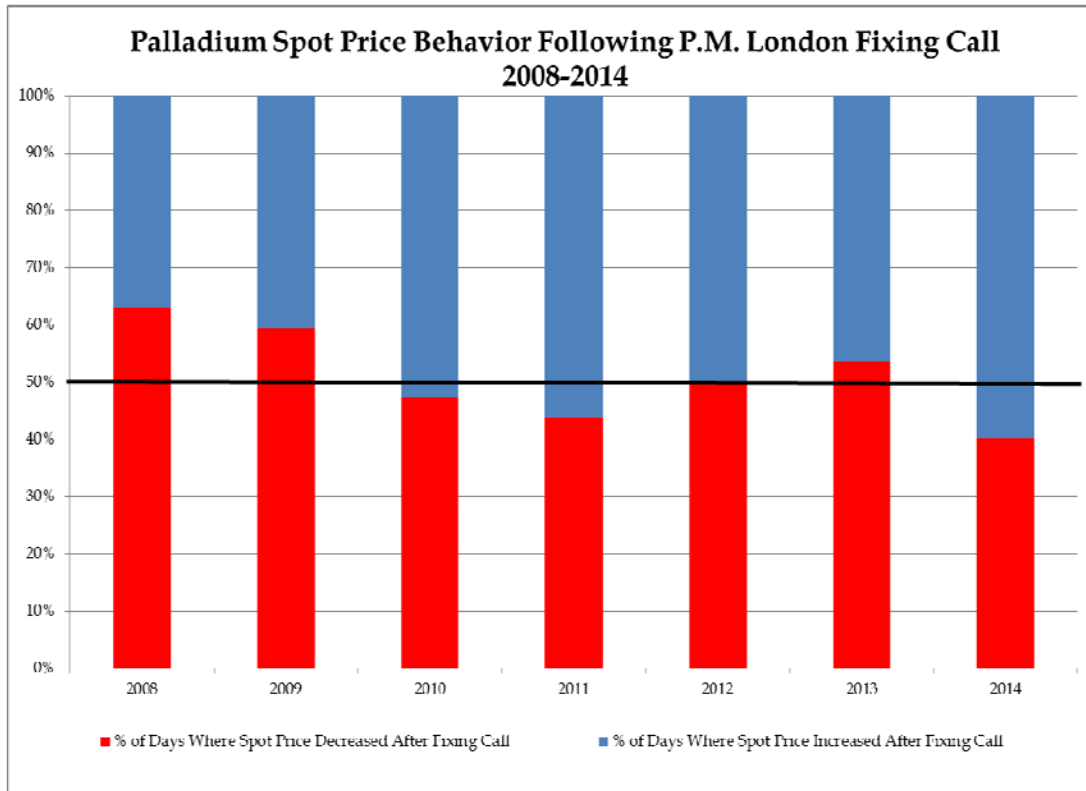
(absent collusion) that one would expect those prices to move predominantly one way or the other over many repetitions of the Fixing.

108. Thus, one way to determine if prices are behaving abnormally – and whether they are indicative of artificial manipulation – is to compare the percentage of days from 2008 to 2014 during which the price fell during the Fixing window (red in the chart below), compared to the percentage of days in which the price went up during the Fixing window (blue bars).









109. As can be seen above, for each of seven years platinum prices fell between the start and end of the AM and PM Fixing more often than they rose between the start and end of the AM and PM Fixing. A similar trend can be seen for palladium.<sup>39</sup> These results are statistically anomalous, given that it is at least equally likely that prices would move up or down during the Fixing, the number of days on which the price decreased should be about the same as the number of days on which the price increased.

**B. Often the AM and PM Fix Prices were Negative Even When the Market was Positive**

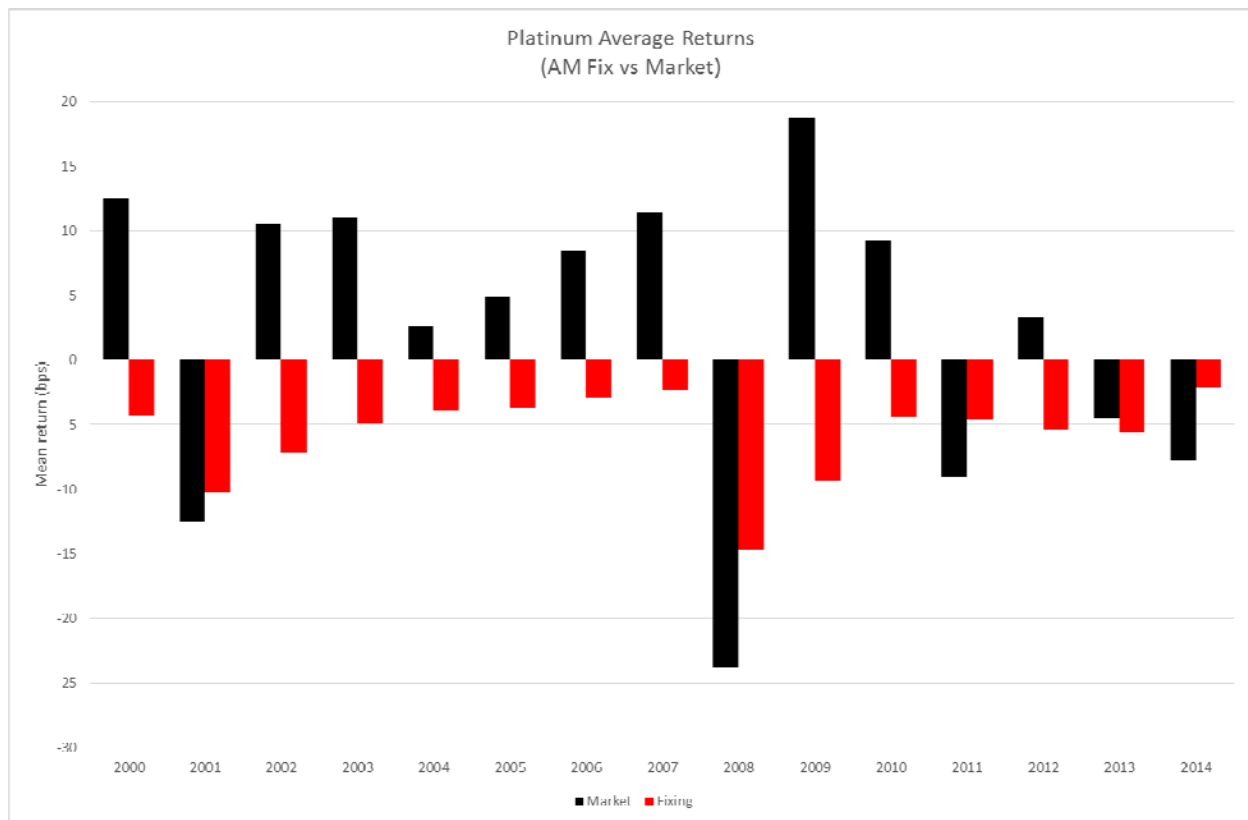
110. Another method of uncovering anomalies in the behavior of prices is to compare how often the Fix was negative compared to the movement of the market as a whole on any

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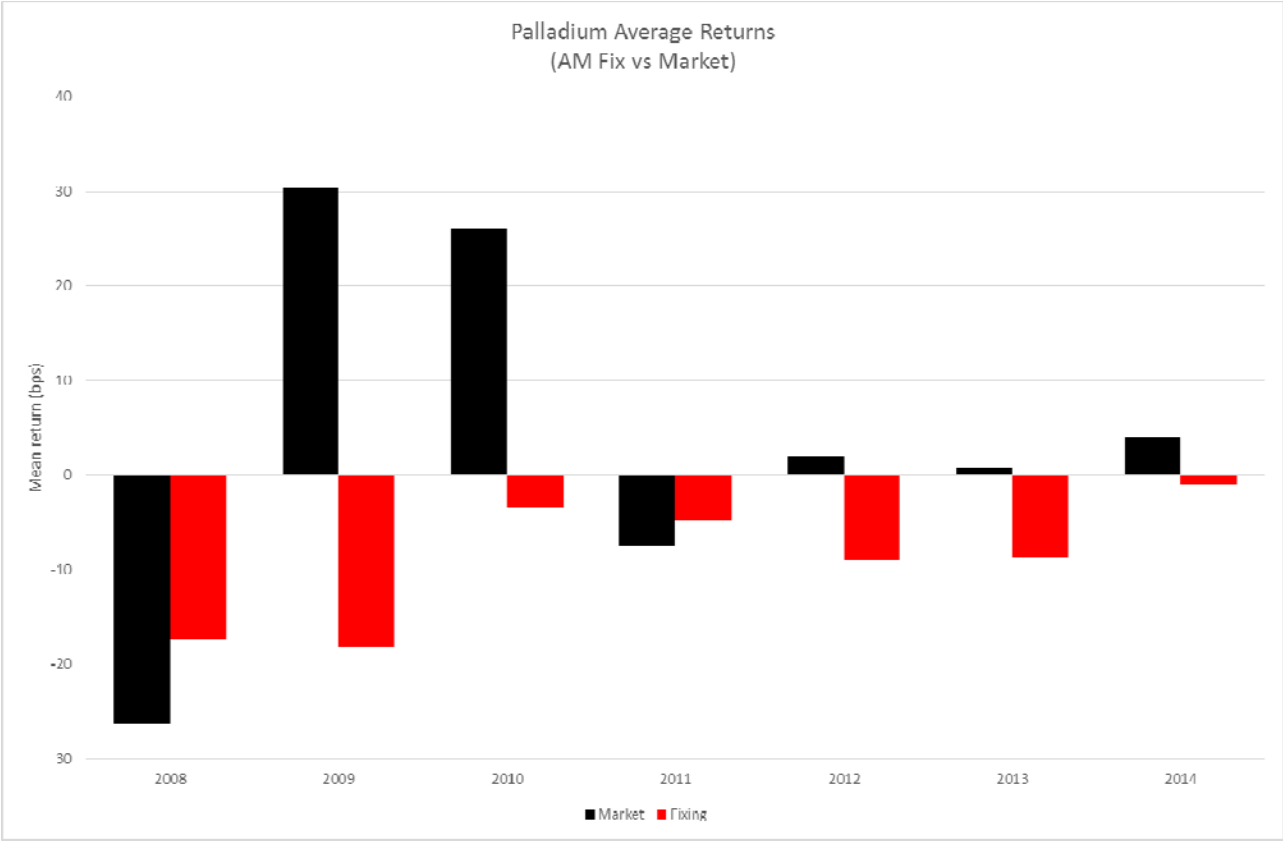
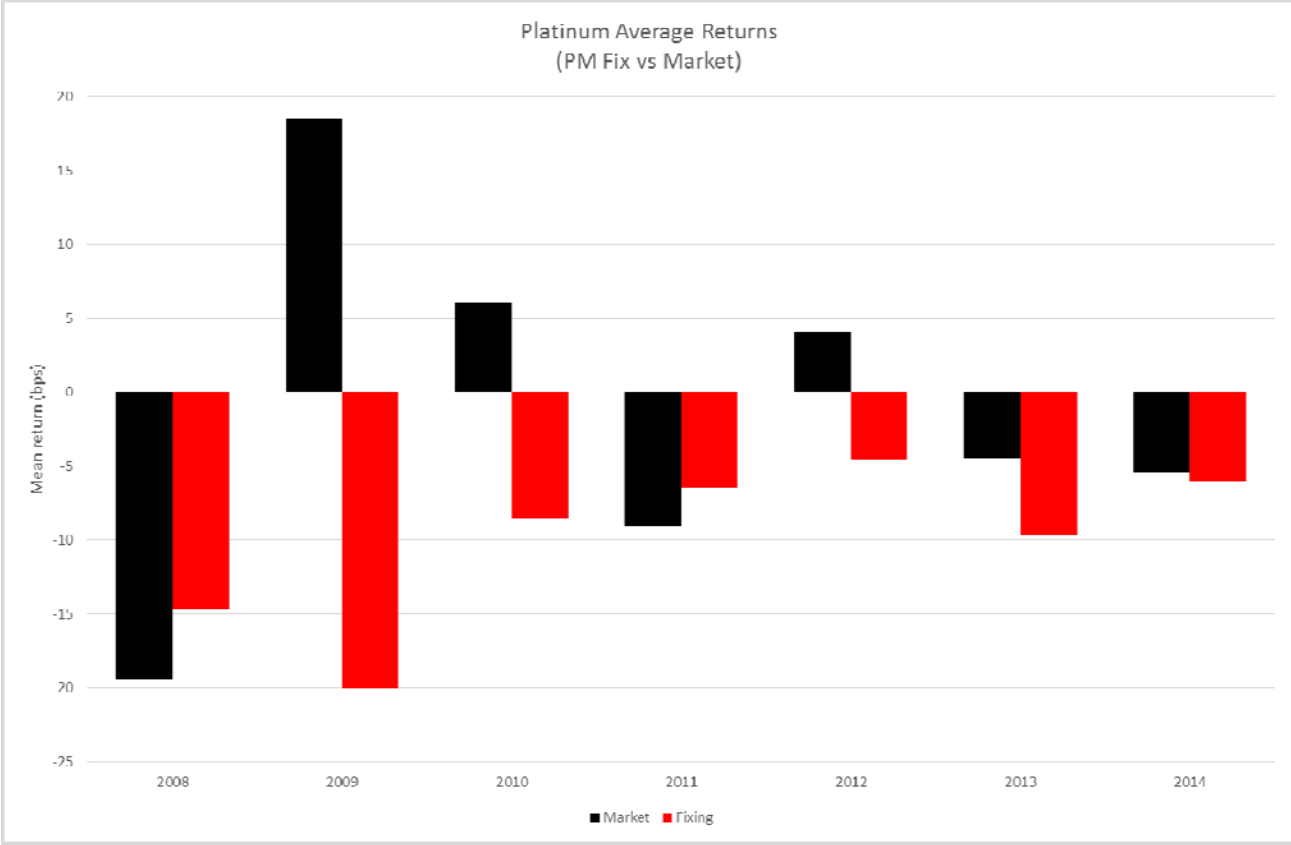
<sup>39</sup> As noted above at ¶100, palladium prices were increasing throughout the Class Period. Thus, the depressive effect of Defendants' downward manipulation on prices was tempered by the overall increase in palladium price. It is unusual that, even though palladium prices were generally increasing throughout the Class Period, the Fixing was still generally negative for palladium more than 50% of the time.

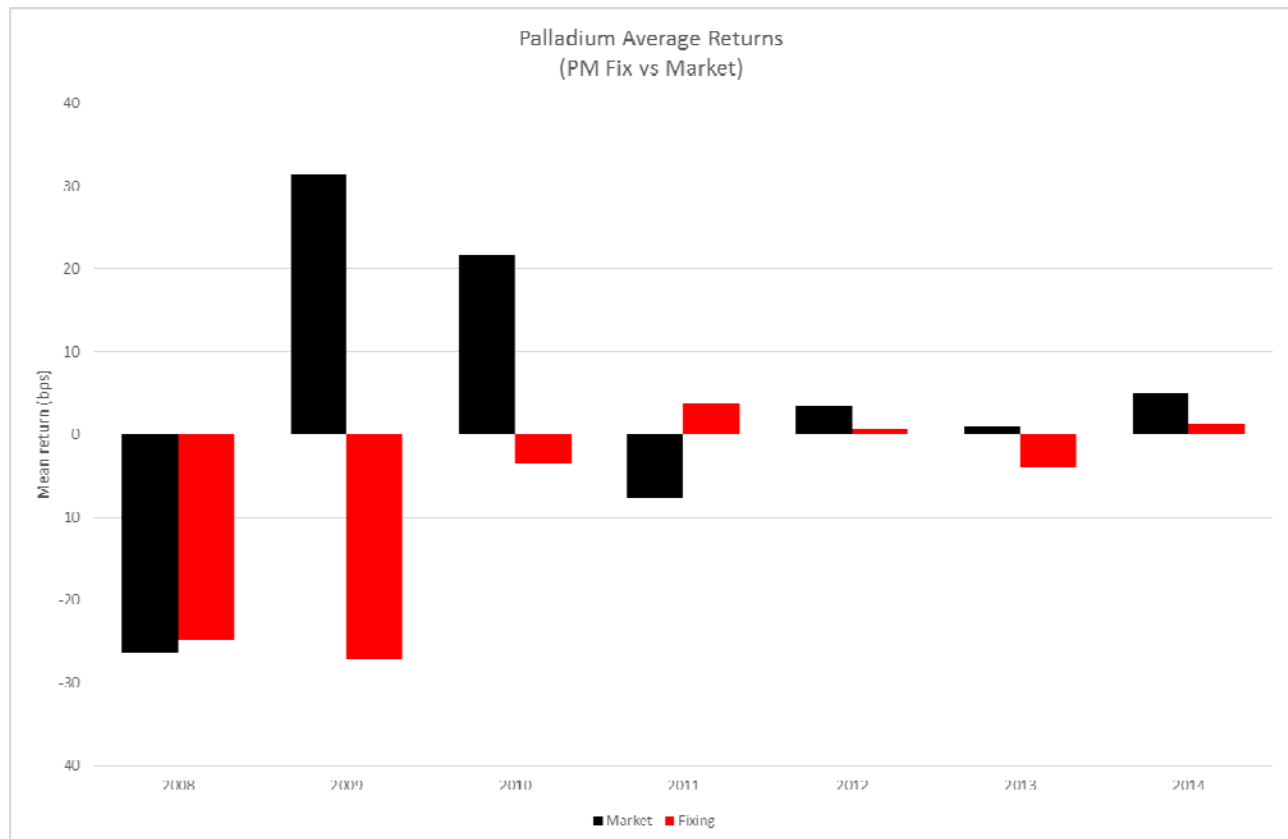
given day. One would naturally expect – when a large and diverse set of days over a period of years is studied – the prices during each day’s fixing window to move up or down largely in sync with the price movement of the market as a whole. While prices during the AM and PM Fixing might occasionally move in the opposite direction of the market as a whole that day, there is no reason (absent collusion) that one would expect AM and PM Fixing prices to *consistently* move against the market.

111. Thus, another way to determine if prices are behaving abnormally – and whether they are indicative of artificial manipulation – is to compare the average returns<sup>40</sup> during the Fixing (red in the charts below) compared to the average returns for the market as a whole (black in the charts below) from 2008 to 2014.

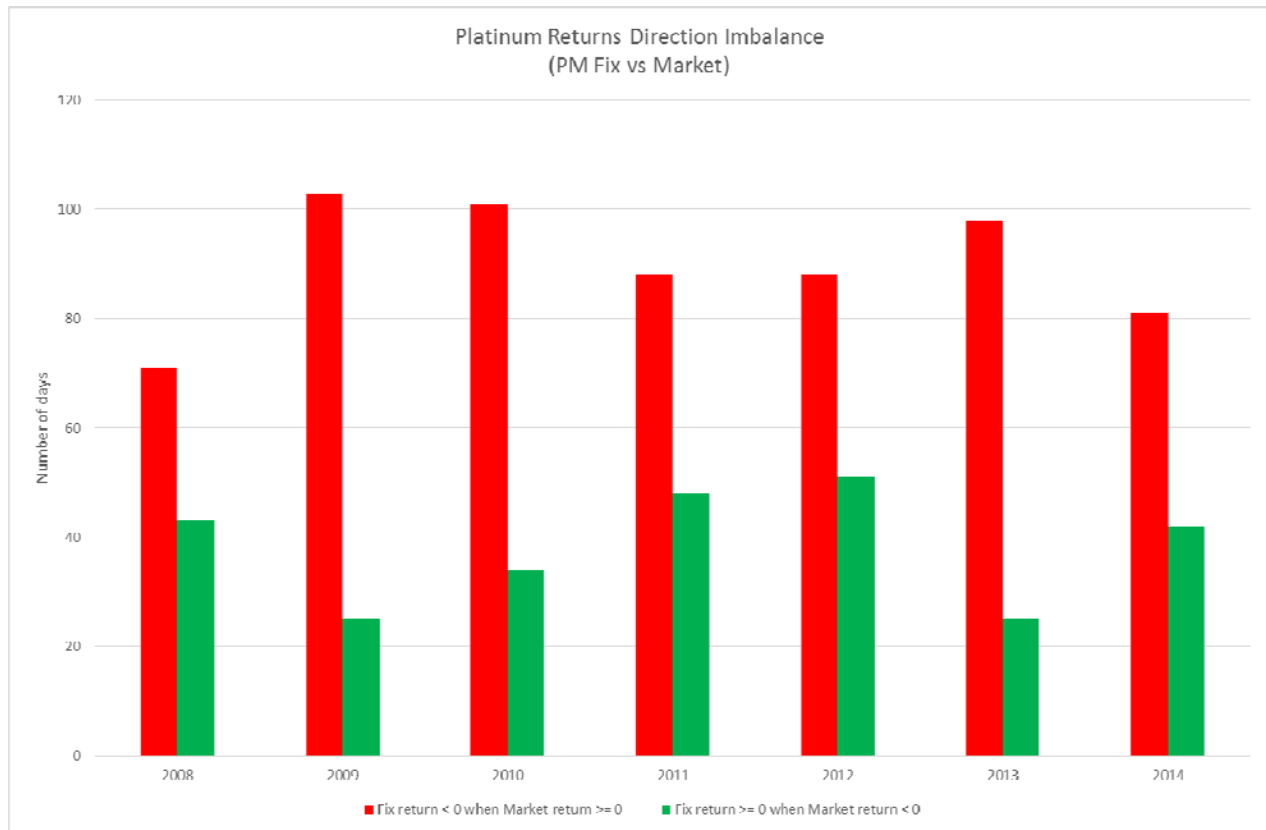
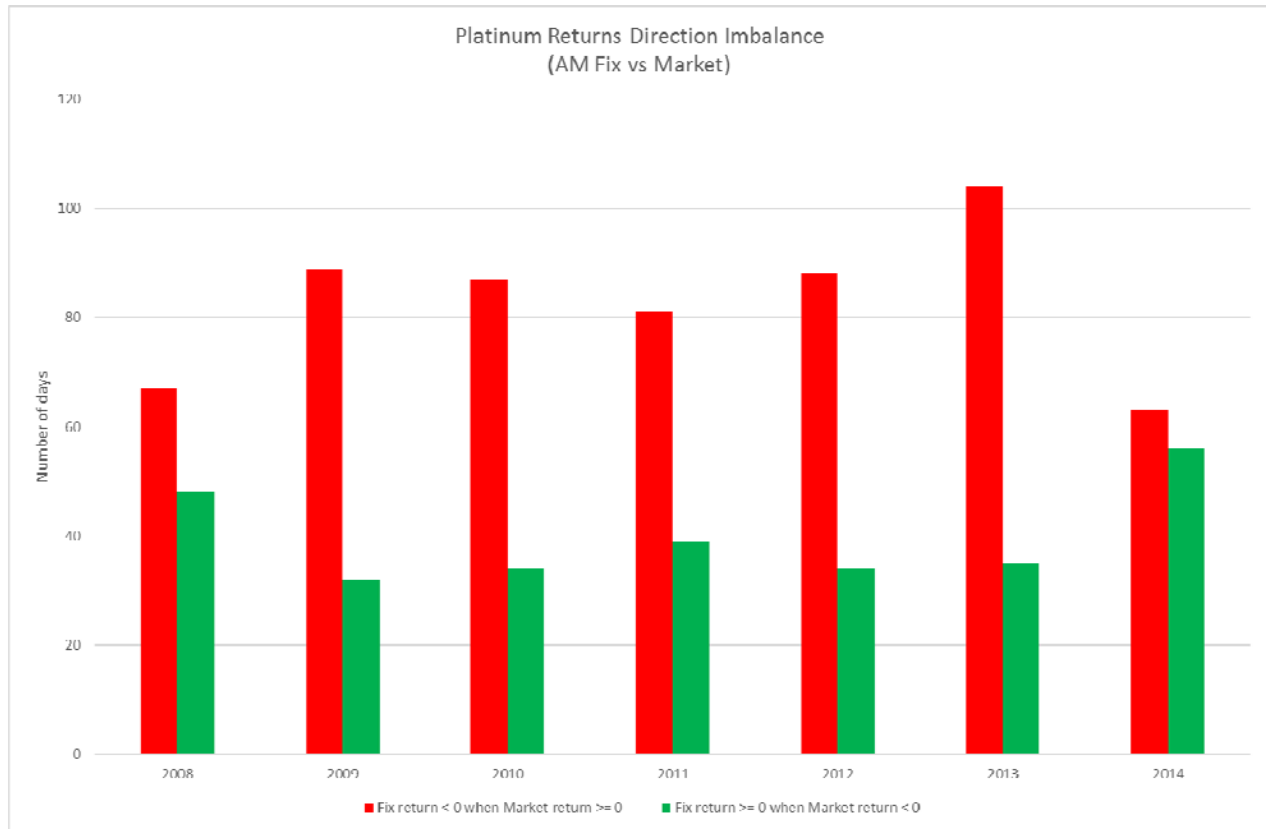


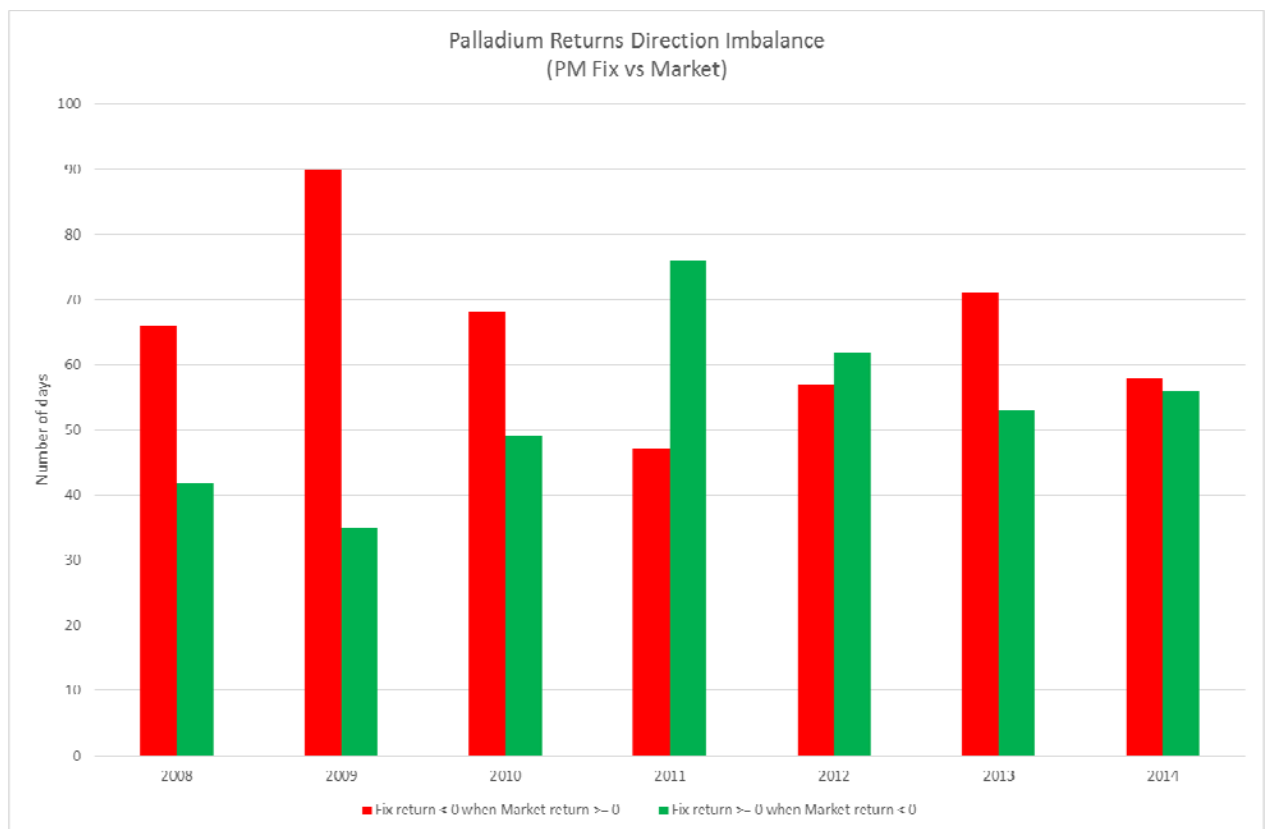
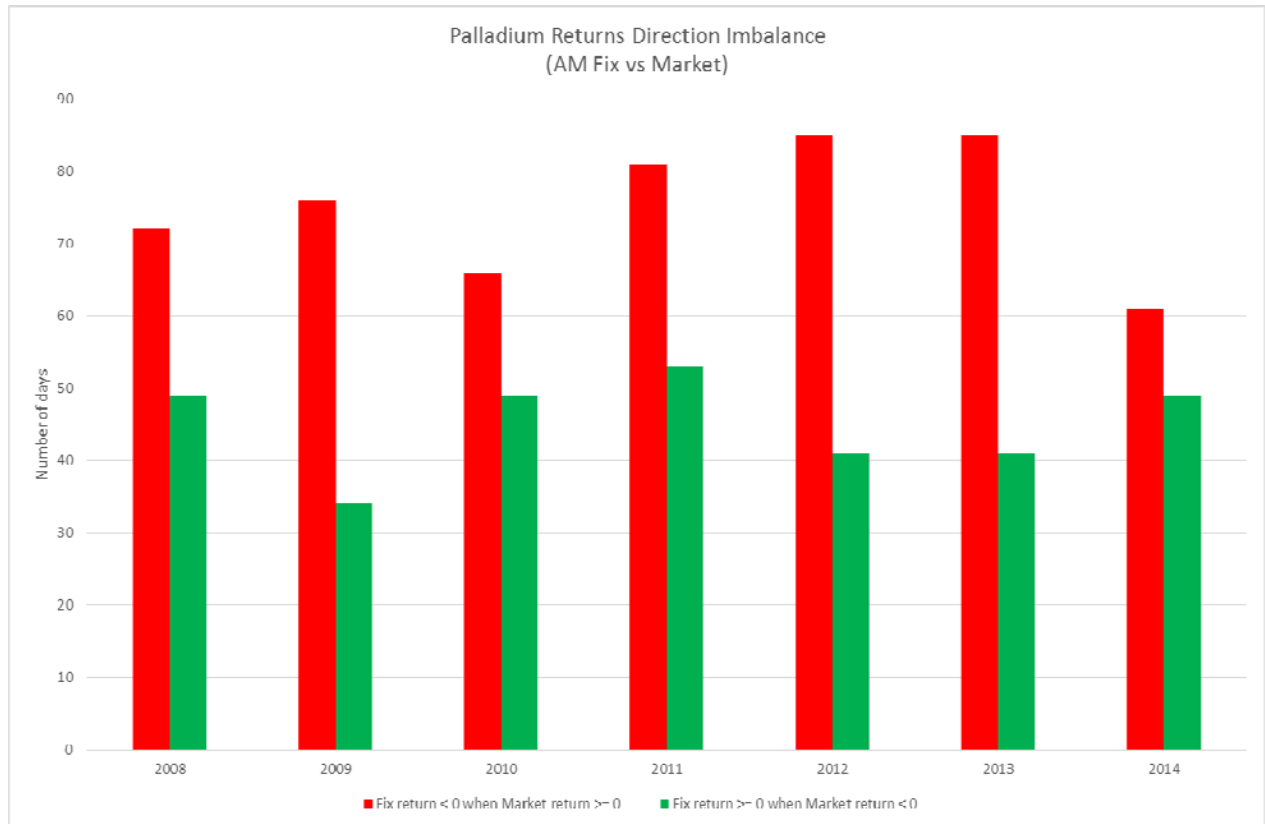
<sup>40</sup> Price changes over a specific interval of time are commonly referred to as “returns.” When these returns are looked at over a series of day, weeks, or months and averaged out, they are referred to as “average returns.”





112. Another way of comparing Fix movements to the market as a whole is to look at how the Fix price behaved when the market as a whole was negative or positive that day. As can be seen in the charts below, the Fix price was negative when the overall market was positive (red in the charts below) far more often than the Fix was positive when the overall market was negative (green in the charts below) or, in other words, a direction imbalance compared to the overall market at the Fix. Given the overall market includes the Fix return as part of the day, these charts conservatively underestimate these differences.





113. As can be seen by the analyses above, for nearly the entire seven year period examined by Plaintiffs, the Fix price had a tendency to fall whether the overall market was positive or negative that day. These results are statistically anomalous, given that one would generally expect price movements during the Fixing to mirror the general trend of the market, the number of days on which the price decreased during the AM and PM Fixing should roughly match the number of days on which price decreased for the market as a whole.

114. Further, the AM and PM Fix consistently being negative defied the “gravity” of the overall market for platinum and palladium by ignoring general trends in platinum and palladium prices. Despite the fact that platinum and palladium went through short-term bull and bear cycles during the Class Period, the negative price movements at the Fix continued throughout the Class Period.

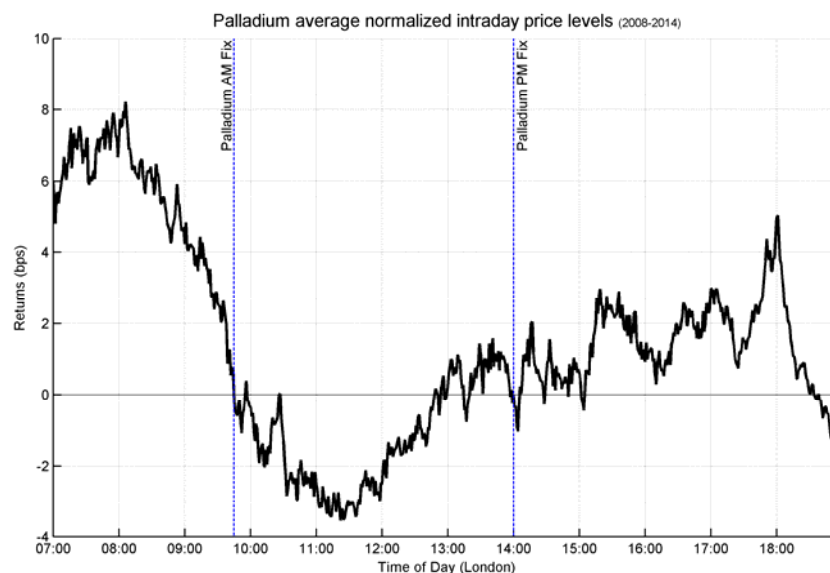
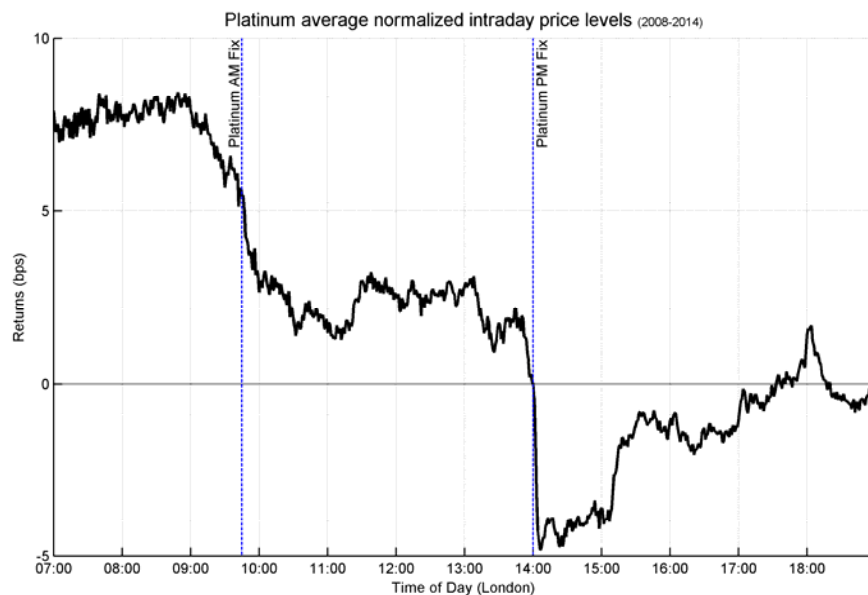
**C. A Comparison of Minute-by-Minute Prices Reveal a Pattern of Price Spikes Around the Fixing**

115. Plaintiffs worked with economists to examine closely the available data to determine *how much* unusual behavior could be seen around the AM and PM Fixing, beyond counting the number of days when prices went up or down.

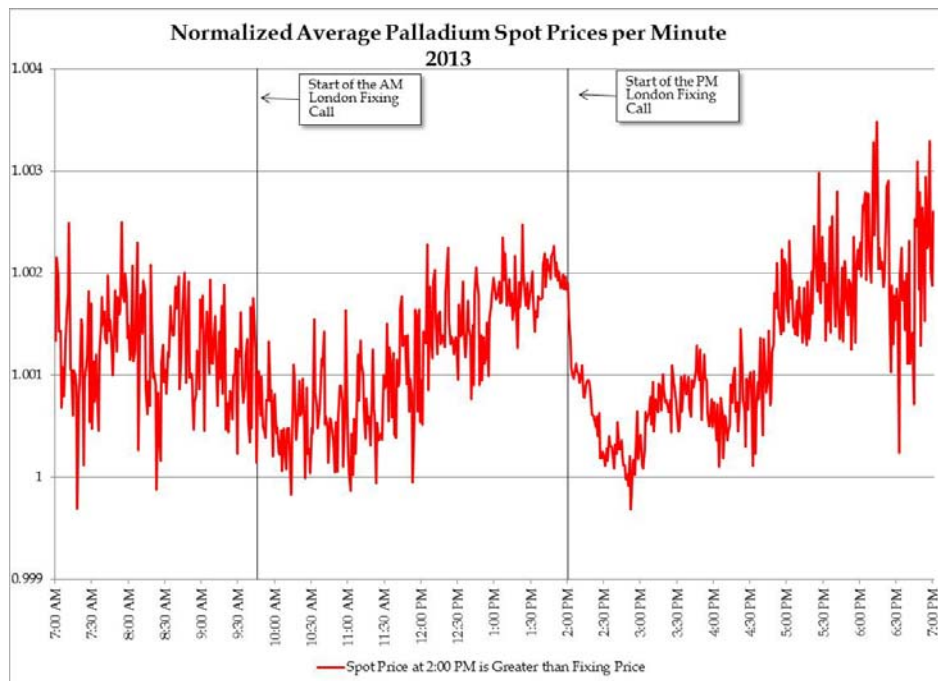
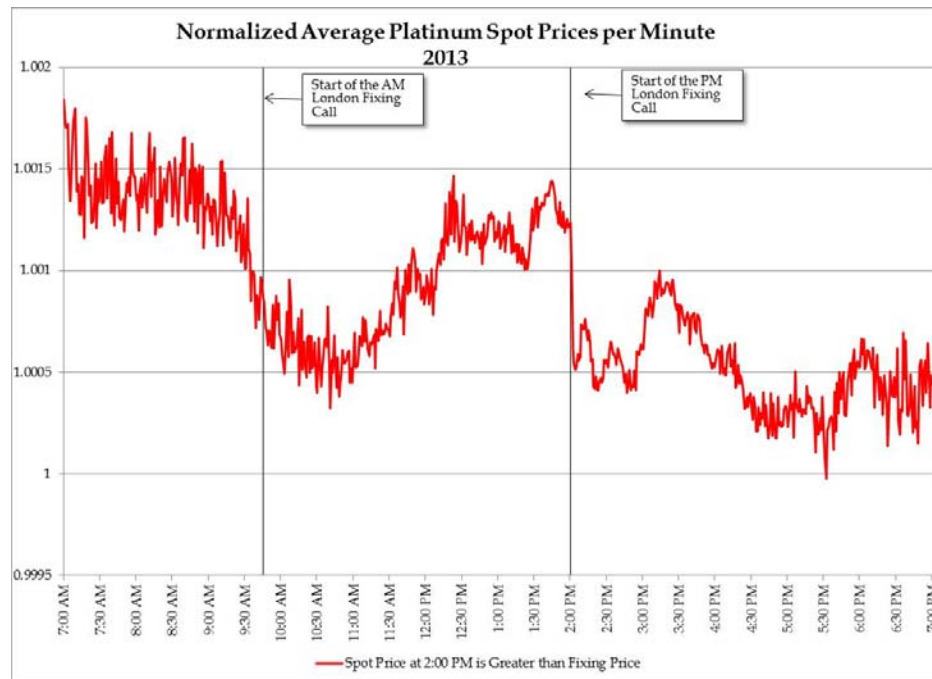
116. Plaintiffs looked at intraday-minute tick data, which shows the upward or downward movement in price from one minute to the next. Prices were normalized by the average price within the same day so that prices within that day can be compared to the next day’s movements, even if the prices are very different in absolute or dollar terms. This is particularly important in platinum and palladium because prices can vary by many dollars from day to day, or month to month, within the same year. Normalization thus enables one to see whether pricing behavior at a particular time of day demonstrates a pattern of abnormal behavior as compared to pricing patterns at other times during the day.



117. The graphs below present a clear picture of large price spikes beginning just before the AM and PM Fixing and continuing until about the time the AM and PM Fixing end. These data again show that prices tended to move downward around the AM and PM Fixing. But it also demonstrates the unusual size and intensity of the downward spikes surrounding the AM and PM Fixing. While other times of day see their ups and downs over time, none are as steep as the downward price spikes around the AM and PM Fixing.



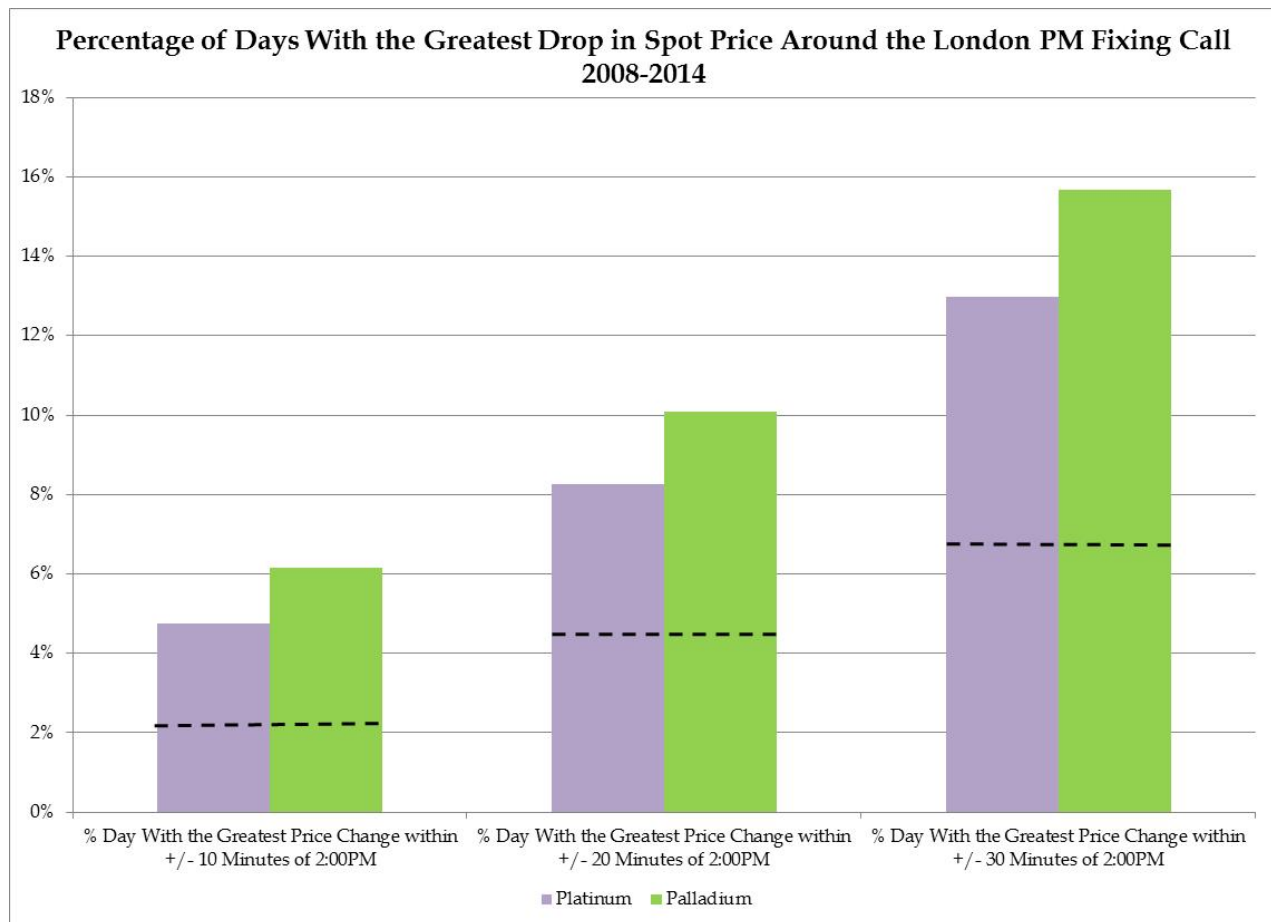
118. These same trends are made even clearer when looking only at the days for which prices decreased during the Fixing calls. For example, the following charts for normalized average platinum and palladium spot prices per minute show that for the whole of 2013 significant downward spikes shortly before the AM and PM Fixing.



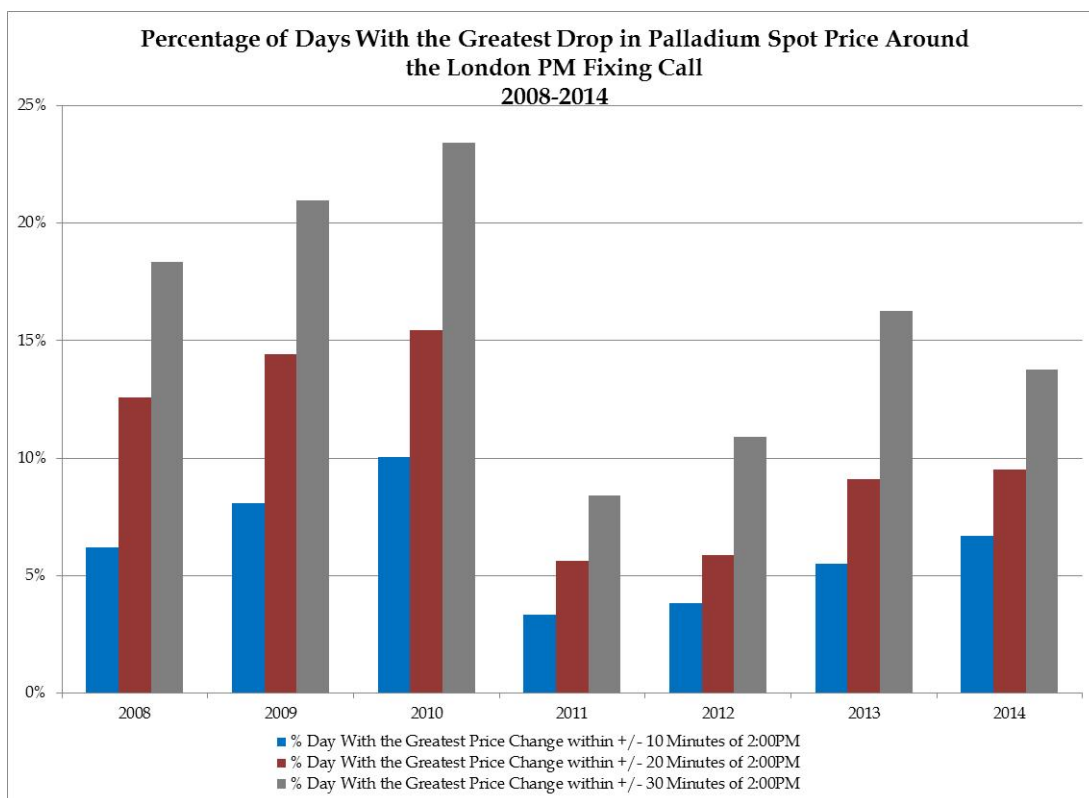
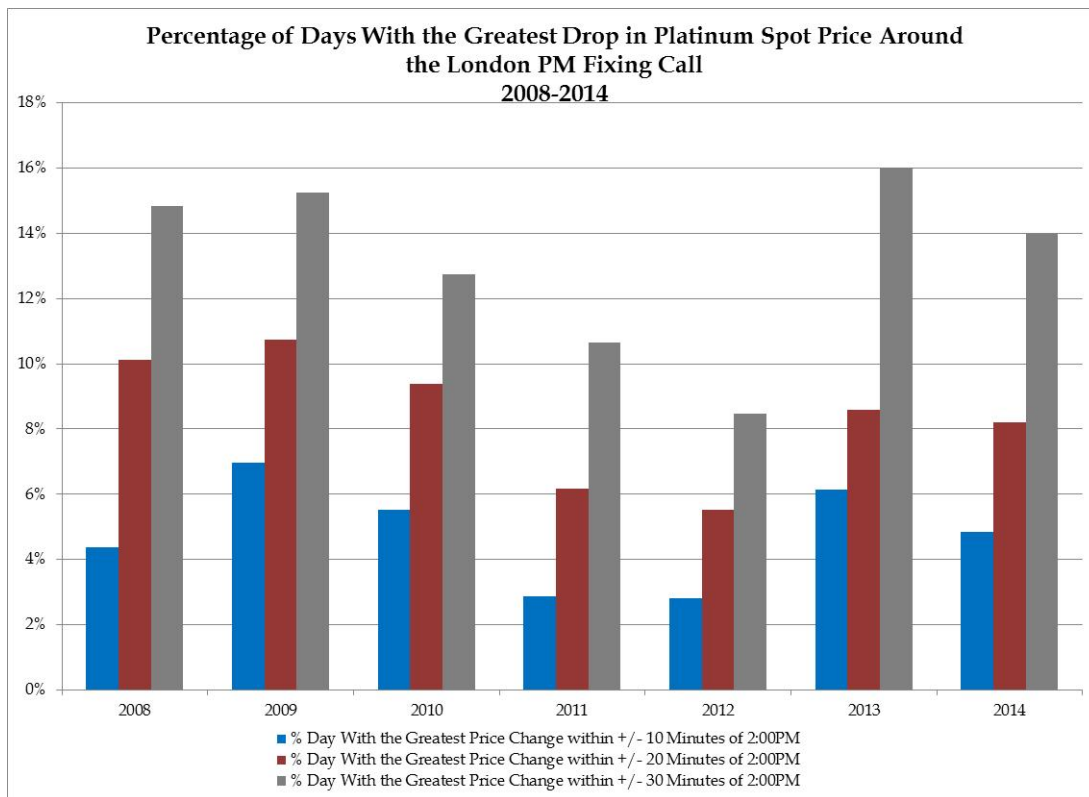
**D. The AM and PM Fixing's Downward Spikes Stand Out as Against Movements at Any Other Time of Day**

119. Price spikes can occur for any number of reasons. But the point of the above charts – which gather data across an entire year's worth of trading days – is that the largest spike of a day is far more likely to occur around the PM Fixing than any other time of day (with the AM Fixing not far behind). Indeed, as the following charts demonstrate, the incidence of largest downward price spikes of a day within a +/- 10 minute window of the fixing is much larger for platinum and palladium than would be expected if the price changes occurred randomly throughout the day. Plaintiffs identified these “worst minutes” of the day by comparing the price at all minutes with the prices both before and after that minute, and flagging those minutes where the price deviated most from other minutes around it.

120. During the fifteen hour trading day in the platinum and palladium markets, there are forty-five different +/- 10 minute windows, just over twenty two different +/- 20 minute windows, and fifteen different +/- 30 minute windows. The chances of the greatest price change for an entire trading day occurring within the +/- 10 minute, +/- 20 minute, or +/- 30 minute window around the PM Fixing is accordingly 2.2%, just less than 4.5%, and just less than 6.7%, respectively. Yet, as the below chart shows, the greatest drop in prices for both platinum and palladium occurred during the windows around the PM Fixing far more often than normal statistical probability would suggest (normal statistical probability is represented by the horizontal dashed lines in the below chart).



121. Further, as the following charts demonstrate, the greatest drop in the price of platinum and palladium occurred during the window around the PM Fixing more often than probability would suggest for *every year during the class period*.



122. That the largest daily price spikes studied above were anomalous in their clustering around the Fixing is also confirmed by the fact that Plaintiffs measured not just the presence of spikes, but also their *size*.

123. The following charts present analyses tracking the “intensity of price changes” for a sample of years during the Class Period in which the price at each minute is compared to either the price 10 minutes before (lag) or 10 minutes after (lead). Large spikes in behavior around the AM and PM Fixing are revealed that are typically not observed at any other time of day and are statistically anomalous.

124. Whether the lagging or leading prices are used as the comparison point, the largest spike is around the time of the PM Fixing (with the AM Fixing not far behind). This can be seen by spikes in prices that become larger and more negative at 2:00 p.m. London time, as the vertical line at 2:00 p.m. marking the beginning of the call lies almost exactly on top of the largest negative spike by any of the three measures.

